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FINAL REPORT

PSRO AMBULATORY CARE QUALITY ASSURANCE REVIEW

VOLUME I. PROGRAM OVERVIEW AND DISCUSSION

NUMBER 4. NEW MEXICO PROFESSIONAL STANDARDS REVIEW ORGANIZATION

BY

HEALTH CARE MANAGEMENT SYSTEMS, INC.

DECEMBER 1978

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Health Care Management Systems, Inc
PSRO AMBULATORY CARE QUALITY ASSURANCE REVIEW FINAL REPORT: VOLUME I AND II
Health Care Management Systems, Inc, La Jolla, California, Dec 1979, misc pp

Volume I of this report consists of five separate sections, each describing one of the demonstration projects in ambulatory care review that were funded by the Health Standards and Quality Bureau (HSQB) in 1976. The Professional Standards Review Organizations that participated in this investigation of alternative approaches to review were the Bronx PSRO, the Central Massachusetts PSRO, the Multinomah Foundation for Medical Care, the New Mexico PSRO, and the Southcentral Pennsylvania PSRO. Volume II contains Health Care Management System's recommendations for the development of ambulatory care review policy and guidelines. General policy recommendations suggest the PSRO ambulatory care review projects remain in a demonstration program; that HSQB maintain a centralized role in management, conducting an active assessment program; and that HSQB establish a technical support capability. Recommendations are also made for the management functions of planning, organizing, actuating, and controlling and for the following technical areas: topic/problem selection; topic and criteria refinement; data collection; data processing and analysis; and review and decision making, feedback and intervention, and restudy. (TJK/DGS)

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This report would not be possible without the dedication and cooperation of the many individuals working in the five PSRO demonstration projects. The descriptions and findings contained in the report are based in the experience of the five PSROs working in the complex and challenging environment of ambulatory care to establish feasible methods for PSRO ambulatory care review. Individual project participants in each of the PSROs are listed in the appropriate sections of Volume I.

HSQB personnel active in original project formulation and direction throughout the demonstration were: Michael J. Goran, M.D.; Leslie G. Ford, M.D.; P. Gregory Banks; Penni St. Hilaire; Dennis Siebert; and the current director, Helen L. Smits, M.D.

The HCMS technical advisory board contributed substantially to this project by offering their expert consultation and advice, not only to HCMS but to individual projects and HSQB. The advisory board consists of Robert H. Brook, M.D.; Ruth Covell, M.D.; Paul J. Sanazaro, M.D.; and H. Richard Nesson, M.D.

The report itself represents the results of the combined efforts of all HCMS staff members engaged in the demonstration project. Merle A. Ryland, M.S., project director, directed the work going into the preparation of the report and contributed major sections of the manuscript. He also was responsible for project liaison, technical assistance and was the strong coordinating force in the project. Nicole H. White, Ph.D., director of special projects, was responsible for early efforts to establish a conceptual framework for project assistance and analysis and also provided active direction during the early stages of the project. She again took an active role in organizing and preparing major areas of the manuscript during the preparation of the final report. Charles Foreman, M.S., senior data analyst, was responsible for the time consuming and difficult task of compiling, organizing and presenting data included in all reports. His analytical skills and consistent attention to data quality have added greatly to the utility of this report. Melinda Alpaugh, M.P.H., Research Associate, played a major role in the project during the second year and contributed a substantial portion of the manuscript. Other HCMS professional staff contributed substantially throughout the project. Staff members include: Edward Carels, Ph.D., Research Director, Kwai Fong Chui, Ph.C., Research Associate, Leonard Hurst, Senior System Analyst and Consultant, Alan Kubrin, M.A., M.P.P., Research Associate, and Aquilo Lipscomb, M.A., M.S., Research Associate

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Principal Investigator

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December, 1978

PREFACE

Although the Health Standards and Quality Bureau (HSQB) had previously funded several special projects in ambulatory care quality assurance, the Bureau initiated a systematic investigation of formal ambulatory care review programs in 1975. Findings of this investigation* highlighted the need for careful examination of alternative ambulatory care review approaches to determine their feasibility, especially in the PSRO environment.

In 1976, under the guidance of Michael Goran, M.D., former Director, HSQB, a demonstration program was initiated to further examine ambulatory care review methods within Professional Standards Review Organizations.

On July 1, 1976 a letter from HSQB was sent to all the PSROs inviting them to participate in an ambulatory care review demonstration project. These letters specified that "the demonstrations will be designed to assess various approaches to ambulatory care quality assurance in a variety of health service delivery systems with substantial variety in the method of obtaining a rational PSRO coordination approach for each project." Five demonstration projects were selected to participate in the demonstration project. Representing a variety of locations and proposed methods the five projects began formal planning activities in early October 1976. The demonstration projects are Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania PSRO, Multnomah Foundation for Medical Care, and New Mexico PSRO.

At the same time as the demonstration projects were being selected an analysis contractor was selected to "assist PSRO in developing the demonstration protocols and be responsible for assessment and analysis of the effectiveness of each of the demonstration projects in conjunction with the PSROs." Health Care Management Systems, Inc. (HCMS) has performed as the ambulatory demonstration analysis contractor since July, 1976. HCMS was also involved in a three-year grant program funded by The Robert Wood Johnson Foundation to examine ambulatory quality assurance programs with special emphasis on information systems. Some funding provided by the Foundation grant was used to give a private perspective to the government-funded demonstration project and to synthesize results of the project with other ambulatory care quality assurance research and evaluation programs in which HCMS was engaged.

This report on the development of ambulatory care review methods in the five PSROs demonstration projects is in partial fulfillment of the analysis contract requirements. The report includes two volumes and two appendices:

Volume I: Program Overview and Discussion
Section 1: Bronx PSRO
2: Central Massachusetts PSRO
3: Multnomah Foundation for Medical Care
4: New Mexico PSRO
5: Southcentral Pennsylvania PSRO
Volume II: Policy Recommendations and Technical Guidelines
Appendix 1: Interim Report - Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings - November 1977
Appendix 2: Ambulatory Medical Care Quality Assurance 1977 Conference Proceedings, La Jolla Health Science Publications, La Jolla, California 1977

Project overviews and data for each of the demonstration projects are documented in Volume I. This volume is especially useful as examples of ambulatory care review developmental efforts in PSRO. Volume II, "Policy Documentation and Technical Guidelines" are directed to HSQB and other agencies involved in medical care quality assurance and utilization review in a regulatory environment. The appendices include the Interim Report which describes the first year demonstration project activity and findings. The second appendix is a book containing papers presented at a two-day national conference on ambulatory care quality assurance. The entire report is designed to assist organizations searching for feasible ambulatory care review alternatives.

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SECTION I

INTRODUCTION AND PURPOSE

Assessment activities conducted in each of the five Professional Standards Review Organization (PSRO) ambulatory review projects were concentrated in several areas: a) description of project administration, b) description of activities in the areas of planning and administration, topic selection, criteria development, data collection, data processing, review and decision making, feedback and intervention, and restudy, and c) description of resources expended to accomplish the project's goals.

The general objectives of this final report are to:

1. Summarize the PSRO activity by presenting a variety of descriptive documentation (Volume I).
2. Document findings of investigation of review techniques employed by each PSRO (Volume I).
3. Guide future technical assistance conducted by HSQB (Volume II).
4. Provide recommendations regarding implementation of ambulatory care review systems by current and future PSRO demonstration projects (Volume II).

Presented in this volume first is a brief program overview designed to acquaint the reader with each PSRO project. If more in-depth information is desired, either the site itself or HCMS can provide a more detailed description. The next three sections describe activities that occurred at each project and the results of these activities. Finally, the last section presents resource data for each PSRO site.

Of the five PSROs funded in the demonstration program, four are initiating ambulatory care review systems where no prior system existed. They are: Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania

PSRO, and Multnomah Foundation for Medical Care. The fifth demonstration program, New Mexico PSRO, has operated a claim-based review system for several years under contract with the State Medicaid agency. The New Mexico PSRO demonstration has explored some specific review questions, most of which were research oriented.

HCMS data collection for this report has continued since the beginning of the demonstration project. Each project has cooperated in providing many different types of data including questionnaire information, counts of activities, computer run sheets, personnel hourly activity description, minutes of meetings, and written project reports. The cut-off date for data was August 31, 1978, except for resource data which was discontinued on June 30, 1978. Therefore, the most recent activities of each project are not reflected in this report. The reader should be aware that this report does not attempt to describe the entire data base of each project; the activities and data described are meant to be representative of the operations of each demonstration project.

SECTION II

PROGRAM OVERVIEW

This report summarizes the NMPSRO Final Report dated September 30, 1978. Most narrative has been extracted from the Final Report and all tables have been reproduced from the Final Report. Further interpretation of results require reference to the report and its Appendixes.

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II. AMBULATORY CARE REVIEW PROGRAM OVERVIEW:
NEW MEXICO PSRO

PREFACE

The New Mexico Professional Standards Review Organization (NMPSRO) was awarded a contract by Health Standards and Quality Bureau (HSQB) to implement an ambulatory care review demonstration program over a two-year period from October 1, 1976 to September 30, 1978. The demonstration consisted of a series of projects building on extensive experience in Medicaid ambulatory care claims based review between 1971 and 1976.

The primary areas of demonstration effort were organized into three major task areas.

Task I - Outcome Indicators - Determine whether, utilizing the claims data available in New Mexico, value judgments can be made about patient outcome under certain conditions following interaction(s) with the health care system.

Task II - Contraindicated Treatment Processes - Attempt to document through claim based data, whether selected potential "problems" can be identified, verified, validated and worked through to a point where corrective action can be recommended.

Task III - Behavior Modification - Determine whether providers of ambulatory medical care can be influenced to change their behavior through nonthreatening educational intervention.

Background

Between 1971 and 1975 every outpatient Medicaid physician claim was screened against clerical guidelines using on-line computer displays. Decisions about whether to pay, deny or "cut back" claims for services were based on medical necessity. The prepayment review approach produced substantial results in reducing unnecessary injections, however, the cost of the system was high.

Beginning in 1975 the NMPSRO developed a new retrospective review system component retaining focused prepayment review only for providers with high denial rates or other identified problems. The prepayment review was kept as a control on excessive utilization; the retrospective review component used a diagnostic specific profiling capability from which one diagnosis at a time was generally selected for review from among the top 25 most frequently occurring diagnoses. The new review system began operating early in 1976 and provided a flexible approach which allowed overview of services rendered to all Medicaid patients and prepayment review of specific physicians and services. System operation was much less costly than 100% prepayment review.

Although the new system represented an improvement in cost, effectiveness, and flexibility, there was still room for improvement. Improvements were needed to assure that identified potential problems in medical practice would receive appropriate attention, that action continued until problem solutions were achieved, and finally that the ambulatory review would become even more cost effective.

NMPSRO developed a demonstration proposal to develop improvements to their existing system and in the final plan established a schedule and structure for managing the demonstration project activities. The three distinct phases of the demonstration project included: eight months for system development; 13 months for operational experimentation; and three months for evaluation of results and preparation of the final report. The result of the demonstration project is a new system for the review of ambulatory care which has been termed "problem-oriented review."

PROJECT ADMINISTRATION

The Management Committee

Physician membership in the Management Committee, so named because of its role in the overall system, is determined by the Chairman of the NMPSRO Ambulatory Review Committee. Key staff also serve as full members. Physician and staff committee members alike oversee the review, intervention, and evaluation process and are charged with the management of all activities. They are responsible for the budget and allocation of resources, they select the problems for review, and determine, along with each review team (to be discussed below), the type of intervention to be performed. The Management Committee serves as the final authority for problems undergoing review, making major decisions throughout the course of review. This concept operates in a manner which is the exact opposite of an automatic screening system. The Committee creates ideas, selects the best, assigns teams to study and act upon them in a way that satisfies Committee objectives (objectives in the Demonstration Project being contract deliverables), then evaluates the results and begins generating ideas again.

Review Teams

The formation of review teams is seen by NMPSRO as an innovation over traditional peer review. In every preceding NMPSRO review system, consulting physicians (Physician Advisors, etc.) were used only at key decision points, referrals were made to them at various points in the process, and they generally referred their materials elsewhere after reaching a single decision. The process involved physicians only on a piecemeal basis and often left the decision makers with little or no understanding of the entire spectrum of events taking place. In problem review, however, review teams composed of physicians and staff are assigned selected problem which they are expected to "work through." Working through a problem means defining and documenting the problem (literature search, frequency of occurrence), reviewing the data, providing the intervention, evaluating results and providing further intervention if necessary. This activity is all performed by one continuously involved team made up of physicians and staff. Two to three physicians generally participate on a given team and are selected because of interest or expertise in the specific problem. Other health care professionals, such as clinical pharmacists, also participate as team members when appropriate.

Further benefits of the review team concept have been added physician input in the early stages of review, formerly a staff-only function, and the potential for clear evaluation of impact. Each review team is responsible for evaluation of the results of its own intervention and there exists a potential with each problem reviewed for a relatively well controlled evaluation of results. Furthermore, the team method requires only about one hour per week from physicians, even during peak review activities. Staff performs the bulk of the continuing work, while the physicians and staff together provide direction and decision making for each problem or topic during weekly team sessions. Medical decisions, of course, remain solely in the purview of physician participants. This type of continuous involvement has seemed to produce a greater commitment on the part of physician participants to see that problems are worked through to completion.

Data Support

The flexible reporting system which supports Problem Review (Report Generator for Ambulatory Review, or REGAR) was developed by Dikewood Industries in cooperation with, and under contract to, NMPSRO. The system is designed to allow interaction between staff/physicians and the information system in a problem specific, question and answer mode. Since REGAR is designed to be flexible, offering the ability to formulate questions about almost any captured data, it eliminates the necessity for continual reprogramming. The system is entirely dependent upon the user to define the desired output and the method for data computation. In the NMPSRO setting, staff provides the actual machine interface while coordinating the review ideas of participating physicians.

The user actually "programs" the REGAR system, defining a subset of the total data system upon which all information contined in a given report will be based. In this manner, PSRO staff can define a particular group of physicians (e.g., Board certified pediatricians in the Albuquerque area), and/or patients (e.g., patients under eight years old who were seen and received at least one prescription of

→ contained?

tetracycline in a one-year period), and perform an analysis of the care delivered within this group, all with a single computer report.

In addition to this flexible report generator, a patient profiling capability has been developed. Such profiles reveal all services billed to Medicaid for a given patient by grouping them into "encounters" (see below) and displaying the encounters in chronological order.

The data base is generated from information captured for the New Mexico Medicaid Management Information System and reorganized for more efficient access. NMPSRO utilized Medicaid information covering all of 1976 and the first six months of 1977 for problem development in the Demonstration Project. The data base has been further extended to include services up through June of 1978 for evaluation of results.

The REGAR system provides a unique method for determining physicians responsible for the many kinds of services rendered to patients. The system defines an encounter as an interaction between a physician and a patient which is billed to Medicaid. Services may be provided to a patient during an encounter (e.g., an injection) or may be billed to Medicaid by some other health care provider, such as a pharmacy, independent laboratory, or a hospital. Services provided directly by the physician during the encounter are naturally "linked" to the encounter because they appear on the same claim form as the charge for the visit. The other services however, are not "linked" in the MMIS system, since they are captured from separate claim forms, are billed by different providers, and often are performed several days after the encounter at which they were prescribed or ordered (e.g., the prescription is often filled one or more days after the "responsible" encounter).

The REGAR programming which developed the Demonstration Project data base made this "link" of all services related to each encounter automatically. For this reason it is possible to correlate oral tetracycline with the diagnosis (reported only on the physicians' claim) for which it was given, and to connect an encounter at which an injection was given with pathology performed several days later by an independent laboratory.

RESULTS

Results of the demonstration project are organized by each of the major task areas: outcome indicators, contraindicated treatment processes and behavior modification. Results are only briefly summarized. Complete details of method, results and conclusions are contained in the NMPSRO "Ambulatory Care Demonstration Project Final Report" and its appendixes. The final report should be referenced for detailed information concerning limitations of each study, the scope and level of effort involved in literature research leading to selection of topics and development of method, and for specific information about the data support system.

Task 1: Outcome Indicators

The two study topics in the outcome indicator task area were: tonsillectomy and adenoidectomy in a Medicaid population and emergency room utilization. Further discussion of definitions and use of the term outcomes in a claim based information system are included in the final report.

Tonsillectomy In A Medicaid Population

Cases Meeting Criteria

Table 1 illustrates results of the T/TA study. Of the 90 Medicaid recipients undergoing T/TA in the first six months of 1977 and eligible for 12 months prior to the operation, 51% met the liberal criteria. (The criteria element most frequently met was that specifying one or more episodes of T & A hypertrophy, also described as chronic tonsillitis.) Forty-five percent of operated cases met the liberal criteria (see Table 1) when the audit was based on primary diagnoses only. Children of four years and younger met the liberal criteria 73% of the time versus 48% of the time for patients older than four years. Fourteen percent of the 13 cases (13 patients) met the conservative criteria, (see Table 1) and ten of these patients were older than four years.

Cases Not Meeting Criteria

Six percent of the 90 operated patients had no episodes of tonsil-related disease in the 12 months prior to the T/TA reflected in the data. Eighteen percent of the 90 patients had one episode of acute pharyngitis, tonsillitis, or strep throat in the 12 months prior to the operation, and another 18% had two episodes. Eight percent of those not meeting liberal criteria had three episodes of acute tonsil-related disease in the year prior to the operation.

T/TA "Candidates"

Of the 90 candidates matched to T/TA recipients on age and sex, 13% met the liberal criteria, while 4% met the conservative criteria. The total candidate group of 391 individuals included 50 patients, or 13%, who met liberal criteria and 22 patients, or 6%, who met conservative criteria. The 90 matched candidates were comparable to operated

TABLE I
PATIENTS WHOSE HISTORIES JUSTIFIED SURGERY: PRIMARY AND SECONDARY DIAGNOSES

	Surgery Rcipients (n=90)		Matched Candidates (n=90)		Total Candidates-includes matched (n=391)	
Liberal Interpretation of Criteria:	# Pts.	%	# Pts.	%	# Pts.	%
(1) 4 or more episodes acute tonsillitis, strep, pharyngitis	6	7%	3	3%	17	4%
(2) 1 or more episodes peritonsilar abscess	--	--	--	--	2	1%
(3) 1 or more episodes T&A hypertrophy	34	38%	8	9%	28	7%
(4) 1 or more episodes tonsillar neoplasm	--	--	--	--	--	--
(5)* 4 or more episodes acute tonsillitis, strep pharyngitis, & 1 or more episodes T&A hypertrophy	6	7%	1	1%	3	1%
TOTALS	46	51%**	12	13%	50	13%
Conservative Interpretation of Criteria:	# Pts.	%	# Pts.	%	# Pts.	%
(1) 4 or more episodes acute tonsillitis, strep, pharyngitis	12***	13%	4***	4%	20***	5%
(2) 1 or more episodes peritonsillar abscess	--	--	--	--	2	1%
(3) 4 or more episodes T&A hypertrophy	1	1%	--	--	--	--
(4) 1 or more episodes tonsillar neoplasm	--	--	--	--	--	--
(5)* 4 or more episodes acute tonsillitis, strep, pharyngitis & 4 or more episodes T&A hypertrophy	--	--	--	--	--	--
TOTALS	13	14%	4	4%	22	6%

* This element simply combines elements (1) and (3).

** Does not add due to rounding.

*** Patient count increases in the conservative interpretation for criteria element (1) due to patients failing to meet elements (3) or (5) when conservative criteria were applied.

individuals with respect to county of residence. Comparability was not ascertained with respect to health care delivery factors (such as specialities of primary physicians) or presence of conditions which would prohibit the operation (e.g., pregnancy).

Physicians Performing Operations

Certain characteristics of the 42 physicians performing 88 of the T/TA's were analyzed. The five physicians who performed four or more of the operations accounted for 31 T/TA's, of which 71% met the liberal criteria and 16% met the conservative criteria. Of the 57 operations performed by the remaining physicians, 42% met liberal criteria while 14% met the conservative criteria. Four of the five physicians who performed four or more T/TA's operated on same-family members.

Thirty M.D.s and 12 D.O.s performed the 88 T/TA's, with liberal criteria being met in 50% and 40% of their cases respectively. Forty-eight operations were performed by Otorhinolaryngologists, with 58% of these cases meeting liberal criteria, versus 48% of cases for other specialists. Applying conservative criteria, 8% of the Otorhinoloaryngologists' cases met criteria compared with 23% of other specialists' cases. When Board certified physicians' cases were compared with non-Board certified physicians, 62% and 45%, respectively, met liberal criteria.

Cost

Total payment for the 90 T/TA operations was determined to be $50,322; approximately half this amount was paid for operations not meeting liberal criteria. Total payment for an operation ranged from $328 to $888.

Emergency Room Utilization Study

Data for the subset of the 100 highest ER utilizers eligible for all of 1976 was compared with figures of a sample of 100 Medicaid patients eligible for all of 1976 and with seven or fewer ER visits. Sixty-five of the high ER utilizers were female while 54 of the 100 control individuals were female. The two groups were not similar with respect to age, as Table 2 indicates. Whereas the average age of the high ER utilizers was 35 years, the average for the control group was 22 years. Perhaps more important for any interpretation of patient condition, nine of the high ER utilizers were 15 years or younger compared to 50 of the control group. Reports which have analyzed the age distribution of the New Mexico Medicaid population suggest that the control group is fairly representative: Brook, et al. (1976) reports that almost 47% of New Mexico Medicaid eligibles in 1971-1973 were aged 14 or younger.

The 100 control individuals had a total of 46 ER visits, or less than one per patient on the average. Control group patients had up to five ER visits but only 27 of the 100 used the ER in 1976. Control group usage, 46 visits per 100 eligibles or .47 ER visits per year per eligible is higher than that reported by Brook et al. for 1971-1973 where the average was .25 visits per year per eligible.

An audit of primary and secondary diagnoses for encounters in all places of service reveals that 24 of the control individuals had one or more chronic diagnoses whereas 96 of the 100 high ER utilizers had one or more chronic problems. Of those individuals with chronic conditions, 84% of the high ER utilizers had at least one ER visit for which the primary diagnosis was a chronic condition. In contrast, 21% of those in the control group diagnosed as having chronic conditions had ER

TABLE 2

CHARACTERISTICS OF 12 MONTH ELIGIBLES: HIGH ER UTILIZERS (> 7 VISITS) RANDOM SAMPLE OF PTS. WITH < 8 ER VISITS

	HIGHER GROUP (>7 ER VISITS)	RANDOM SAMPLE
1. Number in group	100	100
Number females	65	54
Number males	35	46
Avg. Pt. age	33	24
Avg. age females	33	24
Avg. age males	33	19
2. Number pts. with chronic conditions*	96	24
Number pts. with chronic psych. conditions*	69	9
Percent pts. with ER visits for chronic conditions**	81%	5%
Percent ER visits for chronic conditions**	40%	13%
3. Total cost of ER Services ***	$34,364	$1,703
Avg. ER cost/pt.***	$ 344	$ 17
Avg. cost/ER visit***	$ 28	$ 37
Percent ER charges professionally denied	21%	13%
4. Total cost of non-ER services	$305,400	$39,243
Avg. non-ER cost/pt.	$ 3,054	$ 392
Avg. non-ER cost/pt. recieving Medicaid services	same	$ 530
5. Total cost of care	$339,764	$40,945
Avg. total cost/pt.	$ 3,398	$ 409
Avg. total cost/pt. receiving Medicaid services	same	$ 553

* Includes primary and secondary diagnoses listed for all places of service.
** Primary diagnoses only listed for ER visit(s).
*** Includes payment for ER visits in which ER charge was professionally denied.

visits in which a chronic condition was listed as the primary diagnosis. Addressing the data from a different standpoint, it was found that 40% of the high ER utilizers' visits were for chronic conditions, whereas the figure was 13% for the control group. Nine of the control individual versus 69 of the high ER utilizers had one or more chronic psychological conditions listed as diagnoses for encounters in all places of service. (Primary and secondary diagnoses were both considered.) This data is summarized in Table 2.

Payment for services also suggested that high ER utilizers are "sicker" patients. Consideration of ER payment per se is not informative given definitions of the groups; however, it is of interest to note that the average payment per ER visit for the control group, \$37.00, was higher than the average payment per visit for the high ER utilizers, \$28.00. This may be due to more costly services provided to control groups, or the small sample size (46 ER visits for the control group), or may be due to difference in payment denial rates. NMPSRO analyzed only the professional denials of the ER charges and found that 21% were denied for ER visits of high ER utilizers versus 13% for control individuals. See Table 2 for details regarding ER payments.

The total cost of nonER services for high ER utilizers was almost eight times the figure for the control sample: total nonER payments were \$305,400 and \$39,243, respectively. Cost for all services for the high ER group was \$339,764 versus \$40,945 for the control group. Other cost figures were determined as well. It was most informative to exclude from per patient analyses patients who had no Medicaid services in 1976. There were 26 such individuals in the control sample. Average payment for nonER services per patient was $3,054 for the high ER utilizer group and $530 for the 74 individuals in the control group receiving Medicaid services in 1976. The average total cost per patient was $3,398 for the high ER utilizers and $553 for those control recipients having Medicaid services in 1976.

Task 2: Contraindicated Treatment Processes

Contraindicated Treatment Processes research was carried out in the form of four studies. Under the conditions of the Ambulatory Review Demonstration Project contract, NMPSRO agreed to develop and perform "...focused review of treatment processes, i.e., office procedures or drug therapy, when no undesirable effects take place." Four such treatment processes were reviewed in the course of the Demonstration Project. The first study, "Steroids Given to Children for URI," did not produce a treating physician population sufficient for study. The other three, however, produced interesting results. These were entitled: "Prescribing of Drugs During Pregnancy," "The Use of Tetracycline as an Ineffective Drug," and "The Use of Chloramphenicol."

Prescribing of Drugs During Pregnancy

A total of 437 patients of the total pregnant population of 1,168 received no drugs at all (at least, none were billed to Medicaid) during their pregnancy. Table 3 is a portion of the frequency distribution of brand name drugs used by the reviewers to select contraindicated drugs. The frequency of antibiotics and controlled substances can be clearly seen in this table. Several patients received only one drug one time, while one patient received 62 prescriptions in nine months. Table 4 shows the number of prescriptions billed as a function of the number of

TABLE 3

ORAL MEDICATIONS BY BRAND NAME PRESCRIBED TO PREGNANT PATIENTS, IN ORDER BY FREQUENCY OF PRESCRIPTIONS

BRAND NAME	# PATIENTS	# PRESCRIPTIONS	% ALL PATIENTS
Bendectin	123	225	19.26
Feosol	92	145	12.41
Fergon	67	110	9.42
M&I Ferrous Sulfate 325	51	105	8.99
Valium 5 mg	45	86	7.36
Tylenol Cod. 3	41	57	4.88
Tylenol	39	52	4.45
Monistat Vag. Cr.	40	50	4.28
Macrodantin 50 mg	34	50	4.28
Actifed	34	45	3.85
Ferrous Sulfate 325 mg	34	45	3.85
Folvite 1 mg	24	44	3.77
AVC Improved C Appl.	36	43	3.68
Darvocet N-100	34	42	3.60
Bogesic	27	40	3.42
Darvon Compd. 65 mg	26	36	3.08
Empirin Compd. 3	25	33	2.83
Flagyl	33	33	2.83
Hydrodiuril 50 mg	21	33	2.83
Mycostatin Vag	25	33	2.83
Tricofuron Vag	27	32	2.74
Benadryl 25 mg	20	31	2.65
Principen 500 mg	21	30	2.57
Benadryl 50 mg	20	29	2.48
Amcill 500 mg	25	28	2.40
Valium 10 mg	11	28	2.40
Sanstress	16	28	2.40
Omnipen 500 mg	22	27	2.31
Ornade	21	27	2.31
Amcill 250 mg	24	27	2.31
Seconal Sodium 100 mg	12	27	2.31
Dilantin Sod. 100 mg	7	27	2.31
Tomotil 2.5 mg	23	26	2.23
Dalmane 30 mg	17	24	2.05
Ambenyl Expct.	23	24	2.05
Duril 500 mg	11	23	1.97
Hydrosan 50 mg	13	23	1.97
M&I Bendectin	11	23	1.97
Donnatal	17	23	1.97
Valium 2 mg	11	22	1.88
Azo Gantrisin	20	22	1.88
Keflex 250 mg	19	21	1.80
Dimetapp	18	21	1.80
V Cillin K 250 mg	19	21	1.80

TABLE 4

NUMBER OF PRESCRIPTIONS FILLED VS. NUMBER OF PATIENTS

# Rx's FILLED	# PATIENTS	CUMMULATIVE % ALL PATIENTS
0	437	37.4
1-5	480	78.5
6-10	145	90.9
11-15	44	94.7
16-20	32	97.4
21-25	15	98.7
26-62	15	100

TABLE 5

TYPES OF DRUGS PRESCRIBED DURING PREGNANCY

DRUG CATEGORY	# Rx'sFILLED	% ALL Rx's FILLED
Antibiotics	568	13.2
Analgesics	474	11.0
Hematinics	435	10.1
Cough & Cold Preparations	387	9.0
Antinauseants	282	6.6
Atarixic (Tranquilizers)	259	6.0
Feminine Hygiene	213	5.0
Dermatologicals	178	4.1
Antibacterials & Antiseptics	142	3.3
Sedative & Hypnotics	137	3.2
Antihistamines	116	2.7
Hormones	114	2.7
Diuretics	112	2.6
Antacids	88	2.0
Vitamins	85	2.0
Amebacides & Trichomonacides	81	1.9
All other drugs	624	14.5

patients. In addition, one patient received over 1,800 tablets of controlled substances, principally narcotics, between June and her premature delivery in November, 1976.

The most frequently prescribed brand name drug was Bendectin (R), a preparation for nausea and vomiting during pregnancy, which accounted for 5% of all drugs filled. As Table 5 reveals, the most frequently prescribed class of drugs was antibiotics, representing 13% of all drugs, while analgesics ranked second with 11%.

It is noteworthy that when the three strengths of diazepam (Valium ±R1) were combined according to the number of prescriptions, it was the third most frequently prescribed individual drug. The Tylenol (R) tablet containing 60 mg of Codeine ranked fifth in frequency for brand name drugs.

After specific contraindicated drugs were identified (tranquilizers, steroids and antibiotics), provider prescribing habits were reviewed. Table 6 shows the number of providers prescribing as a function of the number of patients prescribed to. Tetracycline was selected as the principal drug for further study because more concise documentation existed about use of this drug during pregnancy than for tranquilizers and steroids. Tetracycline was given to 25 patients by 22 different providers. Twelve of the physician prescribers of the drug also treated the patients' pregnancy. In eleven cases, the drug was prescribed during the third trimester, the time of fetal bone and dentition development. A total 735 tablets of 11 different brands of tetracycline were prescribed, an average of 29 tablets per patient.

TABLE 6

OF PROVIDERS PRESCRIBING, AS A FUNCTION OF PATIENTS RECEIVING, DRUGS WHICH WERE CONSIDERED BY REVIEWERS TO BE SPECIFICALLY CONTRAINDICATED.

# PROVIDERS	# PATIENTS
1	195
1	133
1	42
1	34
1	29
1	28
1	27
1	25
3	24
1	21
1	20
1	19
1	18
2	16
2	13
2	12
4	11
2	9
4	8
7	7
6	6
16	5
10	4
23	3
10	2
23	1

The Use of Chloramphenicol

Fifty-three providers prescribed Chloramphenicol to 121 patients in 1976 and the first six months of 1977. In Table 7 is displayed the number of providers as a function of number of patients prescribed the drug.

Among this group of providers, four were board certified M.D.s. None of the other providers were board certified. Eight of the providers were located in Albuquerque (4 M.D.s, 3 D.O.s and the one Dentist), while 21 were located in 10 - out of a possible 32 - counties throughout the state. Rural physicians wrote 61% of the chloramphenicol prescriptions in 18 months. Table 8 displays the specialties of these physicians, the largest number of physicians being generalists, with the remaining 13 spread among 8 different specialties.

Appropriate prescribing of the drug became defined as "those prescriptions which were either linked to a criteria diagnosis or situations in which it was evident that other less dangerous drugs had first been tried." Diagnoses associated with inappropriate prescribing are shown in Table 9. By far the largest number of prescriptions are associated with the phrase "no diagnosis available." In these cases, the diagnosis was not reported and did not appear on the claim form because the patients were Medicare as well as Medicaid eligible. Medicaid pays for all drugs for these patients but often does not receive diagnostic information which is not required in the Medicare Program. The drug was inappropriately prescribed, according to reviewers, for a total of 24 different primary/secondary diagnosis combinations. These diagnoses ranged from acute respiratory infections to muscle cramp and iron deficiency anemia.

TABLE 7

NUMBER OF PROVIDERS AS A FUNCTION OF NUMBER OF PATIENTS TREATED, ALL PHYSCIANS AND DENTISTS PRESCRIBING CHLORAMPHENICOL

# PHYSICIANS	# PATIENTS
1	14
1	11
1	9
2	8
3	6
1	4
2	3
6	2
36	1

TABLE 8

PROVIDER TYPE AND SPECIALTY, PROVIDERS ELIGIBLE FOR INTERVENTION, PRESCRIBING OF CHLORAMPHENICOL

TYPE *	# PHYSICIANS
M. D.	20
D. O.	8

SPECIALTY *	# PHYSICIANS
General Practice	15
Obstetrics/Gynecology	4
General Surgery	2
Internal Medicine	2
Pediatrics	1
Otolaryngology	1
Geriatrics	1
Ophthalmology	1
Urological Surgery	1
TOTAL	28

* One provider was a dentist

TABLE 9

DIAGNOSES FOR WHICH CHLORAMPHENICOL WAS CONSIDERED TO BE INAPPROPRIATELY PRESCRIBED

DIAGNOSIS		
PRIMARY	SECONDARY	# OCCURRENCES
No Diagnosis Available	none	22
Acute Pharyngitis	none	4
Otitis Media	none	4
Gastroenteritis	none	2
Acute Upper Respiratory Infection (URI)	Gastroenteritis	2
Acute Laryngitis		2
Vaginitis/Vulvitis		2
Pelvic Infectious Disease		2
Pneumonia		1
Acute URI		1
Mastoiditis		1
Bilateral Pneumonitis		
Multiple Abscesses w/Cavitation		
Parkinsonism		
Advanced Cerebral Arteriosclerosis w/Left Hemiplegia		1
Negative Septicemia		1
Hypochromic Anemia		1
Gastroenteritis	Acute Tonsillitis	1
Cellulitis, Foot	Diabetes	1
Cellulitis, Foot	Acute Pyelonephritis	1
Cellulitis, Leg	Fever	1
Fever	Benign Hypertension	1
Neck Injury		1
Intracranial Injury		1
Infant Eczema		1
Tooth Disease		1
Herpes Simplex		1
Influenza	Diarrhea	1
Infected Ears		1
Bronchopneumonia	Bronchitis, Unqualified	1
Vaginal Trichomoniasis	Intermenstral Bleeding	1
Vaginal Discharge	Abdominal Pain	1
Iron Deficiency Anemia	Malaise & Fatigue	1
Acute URI	Bronchitis, Unqualified	1
Anemia	Arteriosclerosis	1
Acute Bronchitis	Fever	1
Emphysema		
Arteriosclerotic Heart Disease		1
Phlebitis		1
Chest Pain		1
Cough		1
Dermatitis	Otitis Media	1
Effusion (Blood), Knee		1

Among the final group selected for study of personal visit intervention, only four providers treated more than three patients in the 18 month period of study, and just five providers gave more than three prescriptions (Table 10). Among patients receiving the drug, no individual received more than three prescriptions (Table 10). Nine patients received two prescriptions and three patients received three. All other patients received chloramphenicol only once.

TABLE 10

NUMBER OF PRESCRIPTIONS AND PATIENTS BY PROVIDER, PROVIDERS PRESCRIBING CHLORAMPHENICOL AND RECEIVING INTERVENTION

PROVIDER	PRESCRIPTIONS	# PATIENTS	1 Rx	2 Rxs	3 Rxs
A	11	11	11	--	--
B	11	8	6	1	1
C	10	8	6	2	--
D	6	5	4	1	--
E	4	3	2	1	--
F	3	2	1	1	--
G	3	2	1	1	--
H	3	1	--	--	1
I	3	1	--	--	1
J	2	2	2	--	--
K	2	2	2	--	--
L	2	1	--	1	--
M	2	1	--	1	--
N	2	1	--	1	--

Conclusions

1. There is little evidence to suggest that prescribing chloramphenicol is specialty-related since a large number of general practitioners prescribed the drug while more specific specialties were scattered.
2. Doctors of Osteopathy seemed to prescribe the drug in greater volume than did M.D.s. Six of the eight D.O.s who prescribed the drug were among the 14 providers who prescribed it more than once, and five of the top seven prescribers were D.O.s.

3. An entirely different group of providers prescribed the drug during the first six months of 1978 than in the 18-month study. This would suggest that prescribing of the drug is not limited to a single group, but rather that it is related to special situations.
4. The drug was not extensively used by any provider.
5. Many of the diagnoses for which the drug was prescribed seemed to be trivial conditions.
6. No patient received a significantly large amount of the drug, and no ill effects which could potentially be caused by the drug could be ascertained from claims based data.
7. Chloramphenicol is medically unrelated to the diagnoses listed in many cases (i.e., muscle cramp, neck injury, infant eczema) and that either the link of drug to encounter is faulty, or an unreported diagnosis exists. Since the claims themselves were reviewed, the problem cannot be attributed to errors in coding. Some explanation of this phenomenon can be found under Behavior Modification in this section.

Tetracycline As An Ineffective Drug

In the 18 months between January, 1976 and June, 1977, 156 individual physician providers prescribed tetracycline to 1,346 patients with URI, strep throat, acute tonsillitis, or acute pharyngitis. A total of 1,584 prescriptions of the drug were written during this time. Table 11 reveals a breakdown of providers by type and specialty, showing that pediatricians and OB/GYNs prescribed the drug the least of any of the listed specialties, accounting for 2% of the total provider population,

TABLE 11

PROVIDER TYPE AND SPECIALTY, ALL PROVIDERS USING TETRACYCLINE INEFFECTIVELY

TYPE	# PHYSICIANS STATEWIDE	# PHYSICIANS IN STUDY	% OF STATEWIDE
M. D.	1,410	109	8
D. O.	117	47	40
TOTAL	1,527	156	10

SPECIALTY	# PHYSICIANS IN STUDY	# OF TOTAL IN STUDY
General Practice	77	49
General Surgery	20	13
Internal Medicine	16	10
Other*	15	9
Family Practice	12	8
Otolaryngology	8	5
Obstetrics/Gynecology	4	3
Pediatrics	4	4
TOTAL	156	100

* Specialties normally billing with less frequency were lumped for purposes of this table.

while general practitioners made up 49% of the sample. Sixty-one of the 156 providers were located in the one urban area of the State (the Albuquerque-Santa Fe area) while 90 were rural (five providers were out of State: three urban in El Paso, and two in rural out-of-state areas). A total of 92 providers were Board certified physicians. Fifty-eight were known to be uncertified, and such information about six physicians was unobtainable.

An analysis by age of patients receiving the drug revealed that 165 of them, or 12% of the total, were under the age of nine. These patients received 13% of all Tetracycline prescriptions written for the diagnoses considered in this study.

High Volume Prescribers of Tetracycline in Ineffective Situations

After selection of providers was completed, 33 providers were determined to be eligible for contact. These physician providers wrote 975 prescriptions of tetracycline to 801 patients with URI, strep throat, acute tonsillitis, or acute pharyngitis. These figures represent 62% and 60%, respectively, of the total prescriptions given and patients seen in the eight month period, yet the providers who were highest ranked among all prescribers (affecting eight or more patients) represent only 21% of the total prescriber population.

When the 33 providers were separated into specialty groups (Table 12), the data revealed that general practitioners represented 73% of the highest volume prescribers. The second highest ranking specialty was family practice with 9%. Pediatricians were not represented in this high volume group. M.D.s and D.O.s were almost equally represented in the sample. None of the D.O.s were Board certified, eight of the M.D.s were; five of the D.O.s and six of the M.D.s practiced in urban settings.

Of the sample, 33% of the providers practiced in urban settings, writing 41% of prescriptions.

One of the 33 providers wrote Tetracycline prescriptions for 83 patients with the listed diagnoses. Seventy-six of the sample of physicians wrote prescriptions for 27 or fewer patients. Table 13 displays the broad range of numbers of patients treated by the physician sample.

TABLE 12

PROVIDER TYPE AND SPECIALTY, PROVIDERS ELIGIBLE FOR INTERVENTION

TYPE	# PHYSICIANS
M. D.	17
D. O.	16

SPECIALTY	# PHYSICIANS	% OF TOTAL TO BE CONTACTED
General Practice	24	73
Family Practice	3	9
General Surgery	2	6
Internal Medicine	1	3
Obstetrics/Gynecology	1	3
Otolaryngology	1	3
Other*	1	3
TOTAL	33	100

* Specialty Unknown

TABLE 13

NUMBER OF PROVIDERS AS A FUNCTION OF NUMBER OF PATIENTS, PHYSICIANS USING TETRACYCLINE INEFFECTIVELY

# PHYSICIANS	# PATIENTS	% ALL PATIENTS AFFECTED
1	83	10
1	61	8
1	60	8
1	58	7
1	43	5
1	40	5
1	38	5
1	35	4
3	27	10
2	22	6
1	19	2
1	18	2
2	17	4
1	16	2
4	15	8
1	13	2
1	12	1
4	11	6
1	10	1
1	9	1
2	8	2
1	7	1
TOTAL 33	801*	100

* This figure is total patients treated, i.e., if two physicians treated 22 patients each, then 44 patients were treated.

Conclusions

General

1. More general practitioners were involved in this medical problem than any other specialty, indicating that they treat more of these patients inappropriately with tetracycline than do other physicians.

2. General surgeons were involved to some extent, suggesting that these physicians are treating nonsurgical problems (URIs).

3. In a recent study of the prescribing of tetracycline to children (Ray et al., 1977) the fact is cited that the American Academy of Pediatrics finds virtually no justification for prescribing to children. The study found that general and family practitioners prescribed the greatest amounts of tetracycline to children. Internists and surgeons prescribed more of the drug to children then did pediatricians in this study.

   Our data on the prescribing of tetracycline to all age groups with diagnoses of URI, strep throat, acute tonsillitis, or acute pharyngitis finds the same general results: general practitioners prescribe the greatest amounts of the drug, while pediatricians are far down the list. These findings suggest that the same results would occur if applied only to the sample of patients under nine years old.

4. This problem was successfully researched, using available claims data and specific claims retrieved when necessary, to the point that participating physicians felt confident enough in the findings to volunteer to make personal visits to involved providers.

Specific

1. Only one-fifth of the provider population accounts for almost two-thirds of the patients treated and prescriptions given, which indicates:

   a) That there is possibly a core of physicians who routinely treat upper respiratory infections with tetracycline.

   b) By impacting on the prescribing habits of this group, a significant reduction in the incidence of the problem would occur.

2. Most of the providers treating in this manner (73%) are general practitioners, indicating that generalists are taking more of a "shotgun" approach of treating undefined URI with a broad spectrum antibiotic.

3. Forty-eight percent of the high volume sample are D.O.s, while only 8% of the physicians practicing in New Mexico are osteopathic (as of June, 1976). This would indicate that D.O.s treat URI with tetracycline to a much greater degree than do M.D.s.

Task 3: Behavior Modification

Task 3 was carried out as a single study. Thirty-three of the highest volume prescribers of inappropriate tetracycline (see above) were identified as providers eligible for personal contact by NMPSRO reviewing physicians. Seventeen of these physicians were randomly selected from a stratified sample as an experimental group, while the remaining 16 were held as controls. Personal visits were made by physician consultants involved in the Demonstration Project to most parts of the State.

As Table 14 reveals, eight of the 17 providers who were visited continued to prescribe tetracycline for URI after they were visited, and records indicate that nine providers wrote no prescriptions after the visit. In contrast, 15 of the 16 control group members wrote prescriptions in the post-visit period. From a chi square analysis a significant difference was found between the two groups ($X^2 = 6.44$, df=1, $p < .025$).

The reduction in actual number of prescriptions in the post-visit period deserves comment. The experimental group providers averaged 12.2 prescriptions in the three six-month pre-visit periods (January 1, 1976 through June 30, 1977). In the post-visit period, the experimental group average was 1.76 prescriptions per provider. The contrast with the control group is striking. Control group providers averaged only 7.44 prescriptions in each of the three pre-visit six-month periods, yet averaged 3.25 prescriptions per provider in the six-month post-visit period.

It is unfortunate that the post-visit data was not of a quality which would allow determination of subtle changes in post-visit behavior, such as documentation of penicillin allergies or secondary conditions. (EDSF patient histories list primary conditions only.) It is possible that the post-visit tetracycline prescriptions would be termed appropriate. Dikewood tape translations may allow for evaluation of this issue.

TABLE 14
PRESCRIPTIONS OF TETRACYCLINE FOR URI'S: EXPERIMENTAL AND CONTROL GROUP PROVIDERS

Experimental Group Providers	PRE-VISIT:* Jan-June 1976	PRE-VISIT:* July-Dec 1976	PRE-VISIT:* Jan-June 1977	2 Yr. Jan-June Avg.	POST-VISIT: Min. 5½ Mos.* (Visits 11/27/77 thru 1/17/77)
E1	43	41	23	33	4**
E2	59	14	7	33	0
E3	5	23	48	26.5	1
E4	21	21	27	24	0
E5	21	20	21	21	9
E6	12	11	14	13	1
E7	7	8	13	10	1
E8	2	11	10	6	0
E9	9	6	3	6	3
E10	4	6	9	6.5	10
E11	10	3	6	8	0
E12	5	6	7	6	1
E13	2	12	3	2.5	0
E14	9	3	2	5.5	0
E15	5	3	4	4.5	0
E16	5	5	2	3.5	0
E17	2	2	7	4.5	0**
TOTAL	221	195	206		30
(Avg. Rx's Per Provider)	(13)	(11.47)	(12.12)		(1.76)

6 MO. AVG. = 12.2

Control Group Providers	PRE-VISIT:* Jan-June 1976	PRE-VISIT:* July-Dec 1976	PRE-VISIT:* Jan-June 1977	2 Yr. Jan-June Avg.	"POST-VISIT"* Jan-June 1978
C1	4	4	4	4	0
C2	6	2	2	4	4
C3	1	7	4	2.5	4
C4	6	7	5	5.5	4
C5	7	6	2	4.5	2
C6	2	5	4	3	2
C7	13	5	7	10	2
C8	8	1	6	7	2
C9	6	21	17	11.5	5
C10	6	6	2	4	2
C11	11	13	8	9.5	5
C12	7	7	10	8.5	2
C13	21	11	11	16	7
C14	12	4	7	9.5	2
C15	24	7	12	18	7
C16	5	8	3	4	2
TOTAL	139	114	104		52
(Avg. Rx's Per Provider)	(8.69)	(7.13)	(6.5)		(3.25)

6 MO. AVG. = 7.44

* PRE-VISIT DATA represents Dikewood Industries claims data. Links between prescribing physicians office visits and prescriptions were computerized.

POST-VISIT DATA represents EDSF claims data. Links between prescribing physicians and office visits were hand generated.

Coding and data entry are not comparable for the two data periods.

**Visits took place in January. Represents less than 6 months of data.

9.140

Finally, it is interesting to note that consultants predicted change in approximately half of the providers visited about tetracycline and that the results proved them correct.

In the case of personal visits made on the problem of chloramphenicol, it was impossible to determine whether or not behavior change was achieved. This situation developed because data could not be obtained from the test audit established to produce such data.

Task 4: Other Activities

Other activities were included in the Final Report which were a natural outgrowth of contracted project activities. These activities involved the following two topics.

Tracer Study

The four studies performed as part of contraindicated treatment processes produced information on several providers in common.

Comparison of Providers Identified in Operational Review and Studies

The data in Table 15 contains a listing of providers who had been singled out for actions in the operational system and shows those cases in which these same providers were identified and deemed eligible for contact in one of the four Contraindicated Treatment Processes Studies performed in the Demonstration Project. The periods during which the operational system components were functioning are mentioned earlier. Findings are as follows:

1. There were 56 providers sent one or more letters by the NMPSRO Education Committee and 56 individual providers were placed on prepayment review by the NMPSRO Ambulatory Care

TABLE 15
CROSS COMPARISON - PROVIDERS IDENTIFIED IN OPERATIONAL & PROBLEM SYSTEMS

OPERATIONAL REVIEW		PROBLEM ORIENTED REVIEW			
PROVIDERS BY ED. COMM	PROVIDERS P.P. REV.	STEROIDS TO KIDS	TCN FOR URI	TCN TO PREG. WOMEN	CHLORAMPHENICOL
W5A3	x	x			
X3f5	x		x		
X7c7					
01d8	x				
01e7	x				
01f6					
05G5					
05h4					
06i0			x	x	
07j5					
07k6	x	x			
0714	x	x			
08m3					
09n6				x	
10p2	x				
10q6	x				
11r6					x
11s0	x				
11t8					
12u5	x				
13v5					
14w4					
16x2					
17y7	x				
17z3					
19ac	x				x
23A4	x	x			
23B8					
24C1	x				
24D3			x		x
24E5					
24F2					
25G5				x	
26H9	x				
28I2					
29J8			x		
40K2					
40L3		x	x		
40M0					x
41N0	x	x	x	x	x
41P8			x	x	
41Q4	x		x		x
41R6	x			x	
42S0			x		
43T2					
43U6					
43V9			x		x
44W2	x	x			
44X4		x	x		
44Y0					x
44Z4				x	
44A4					

TABLE 15 (continued)
CROSS COMPARISON - PROVIDERS IDENTIFIED IN OPERATIONAL & PROBLEM SYSTEMS

OPERATIONAL REVIEW		PROBLEM ORIENTED REVIEW			
PROVIDERS BY ED. COMM	PROVIDERS P.P. REV.	STEROIDS TO KIDS	TCN FOR URI	TCN TO PREG. WOMEN	CHLORAMPHENICOL
45B7					x
45C5	x				
46D2			x		
46E4	x	x	x		
	V4F2	x			
	X7G0				
	X8H8				
	03I1				
	11J6				X
	15K4				
	19L1				
	19M7				
	20N9				
	21P9				
	22Q1				
	24R2				
	35S7				
	25T3				
	27U8	x			
	29V3				
	30W8				
	30X6				
	30Y0				
	30Z2		x		x
	40A6				x
	41B5				
	41CZ				
	42D2				
	42E2		x		
	43F6				
	43G1				
	43H5				
	44I5				
	44J9				
	44K0				
	44L5				
	45M8		x		
TOTALS: 56	56	12 of 19 identified	16 of 33 identified	7 of 19 identified	13 of 29 identified

(unduplicated total - Operational = 90)

Review Committee. Of the total 112 committee actions there were 90 unduplicated providers being acted upon by the operational committees.

2. When the providers identified for potential action in the four problem oriented studies were compared to the 90 unduplicated providers acted upon by the operational committees, it was determined that 47 of these, or 52%, had been identified using the problem oriented approach.
3. Of the 47, 11 (12.2%) had been identified in two or more demonstration project studies.

Comparison Across the Four Studies

A total of 89 different providers (including physicians and dentists) were identified across the four contraindicated treatment process studies. Table 16 shows that 16 of these providers, or 18%, appeared in two or more studies. Ten of these 16 physicians were contacted by the Education Committee, and five of them were placed on prepayment review. Eleven of the 16 physicians (69%) saw more than 100 Medicaid patients in the first six months of 1977, and six of them (38%) saw more than 400 Medicaid patients in this period. One provider was found to be contributing to all four problems.

Education Committee Comparison

The overlap between physicians identified by the Demonstration Project and those identified by the Education Committee appears in Table 17 Dentists were, at this point, eliminated since the Education Committee and Ambulatory Review Committee deal only with physician providers). Twenty-seven, or 48% of the 56 physicians who received

TABLE 16

NUMBER OF PROVIDERS CITED IN:

1 STUDY	2 STUDIES	3 STUDIES	4 STUDIES
73 82%	14 16%	1 1%	1 1%

N = 89 (includes 3 dentists)

TABLE 17

PHYSICIANS IDENTIFIED BY:	1st 6 MONTHS 1977 100 MEDICAID PTS.	100 MEDICAID PTS.
Education Committee	13	16
Education Committee & Demonstration Project	7	20
Demonstration Project	33	26

N - 86 (includes physicians only)

Education Committee letters were also identified in at least one Project study. In terms of patient volume, 20 of the 36 high volume physicians acted upon by the Education Committee (defined as having greater than 100 Medicaid patients in the first six months of 1976) also appeared in Project studies. Overall, the Education Committee identified 20 low volume and 36 high volume physicians, while 40 low and 46 high volume physicians were found by the Demonstration Project. Twenty-one percent of the providers identified by the Demonstration Project and 36% of the providers contacted by the Education Committee were providers who treated 400 or more patients in the first six months of 1977.

When analysis of overlap with the Education Committee is performed for each of the four studies, we find that 47% of the providers identified in the study of steroids to children were contacted by the Education Committee. Similarly, 39% of the tetracycline in pregnancy physicians, 37% of the tetracycline to patients for URI physicians and 30% of chloramphenicol prescribers were contacted by the Committee.

Ambulatory Review Committee Comparison

Fifty-six individual physicians were placed on prepayment review by the Ambulatory Review Committee at sometime between September 1975 and the summer of 1977. Thirty-six percent of these physicians were identified in the four studies. Low volume physicians (less than or equal to 100 Medicaid patients in six months) represent 65% of the prepayment review population, while such providers contributed 53% to the total Project population of identified physicians. Fifteen of the 22 physicians identified by both review systems were low volume providers.

High Volume Providers

The relationship between extremely high volume Medicaid providers (400-800+ Medicaid patients in a six-month period) and identification of providers reviewed by three different review systems (the Ambulatory Review Committee with prepayment review, the Education Committee and retrospective review and the Demonstration Project in problem review) appears in Table 18. A total of 26 physicians treated 400 or more patients during six months and the Education Committee and Demonstration Project identified 77% and 69% of these respectively. The prepayment review system affected only 39% of this physician group. Physicians were placed upon prepayment review in September, 1975, because of high denial rates. Volume of patients was not a consideration at that time.

The 77% and 69% figures listed above for the Education Committee and the Demonstration Project fall respectively to 22% and 30% when the larger group of 156 physicians with more than 100 patients in six months are considered, while the figure for prepayment review drops even further to 12%.

TABLE 18

RELATIONSHIP BETWEEN HIGH VOLUME PHYSICIANS & PHYSICIANS IDENTIFIED IN REVIEW

# PATIENTS	# PHYSICIANS	ED. COMM. # PHYSICIANS	PREPAY. REV. # PHYSICIANS	DEMO. PROJ. # PHYSICIANS
800 +	9	7	4	5
400-799	17	13	6	13
100-399	130	15	9	29
TOTAL	156	35	19	47

Provider #41

Provider #41 prescribed several contraindicated substances to pregnant women and was therefore singled out for a case study. Consulting physicians identified the fact that the provider saw an abnormally high number of patients with nausea and vomiting, and gave everyone an injection of Tigan. His use of the drug was so extensive that staff and physicians prepared a report comparing him to other physicians in this one area, and recommended that the NMPSRO refer the case for further investigation.

This report was made a part of a more extensive evaluation of the physician, and was referred by the NMPSRO Board of Directors to the State agency in the summer of 1978.

CONCLUSIONS

Each section of this overview presents findings drawn from activity associated with the specific studies which constituted Project deliverables (tasks). The conclusions presented in this section are those which pertain to the contract deliverables themselves and thus are more broad in their scope. The format for presentation relates each set of conclusions to a particular task.

The final portion of this section is devoted to General Conclusions which pertain to the overall Project or to entire concepts such as Problem Oriented Review.

Outcome Indicators

Whereas a medical outcome has generally been considered a clinically observable change in patient status (such as death, return to work or absence of fever), a claims information outcome as defined in this

Project is an interaction with the health care system which results in a claim for payment. Examples of such outcome include hospitalization, office visits, prescriptions, and operations. Thus process can be defined as outcome, a definition which is widely supported in the literature.

1. In order to assess outcome it is necessary to perform a formal research study. PSROs are generally not equipped to perform such studies.
2. The initial objective of this task was defined as a search for indicators of patient outcome which could be incorporated into an operational screening system for ambulatory review. Such a search, involving detailed statistical analysis, proved to be beyond the scope and funding limitations of the Project.
3. A survey of current literature is essential prior to initiating outcome research. Such a survey can:
    a) Document the need for study;
    b) Provide the opportunity for replication of other studies and thus help validate results;
    c) Help to avoid unnecessary duplication of already well substantiated results;
    d) Help to avoid unnecessary expenditures of time and money in the process of planning a study from the ground up.
4. Outcome studies performed in the PSRO environment must be practical because they must represent applied as opposed to pure research.

5. The planning of study methodology is essential after a thorough review of literature and the selection of a practical study topic.
6. Outcome study provides an alternative to traditional ambulatory review approaches. Instead of seeking to define the quality of care rendered by specific providers, such study evaluates care in the context of a particular event by examining, at an aggregate level, the process which led up to the event.
7. Outcome studies provide the opportunity to promote change in systems and policy as an alternative to attempting change in the practice of individual providers.
8. As the problem review data base is expanded over time, the subjects amenable to outcome research will increase as will the capability to adequately evaluate pôst-event data.
9. Having performed two outcome studies in the demonstration mode, NMPSRO Project participants are convinced of the existence of the potential for many more studies and confident of the capability to perform them.

Contraindicated Treatment Processes

1. Review of defined, documented medical problems focuses and limits activity, allowing problems to be pursued in depth as opposed to spreading responsibility thinly over a broad spectrum of activity.
2. The method of problem review allows comparative decisions about provider or recipient patterns or use of problem specific information. This opportunity is not available in claim by claim review situations.

3. Potential medical problems were easily generated in this system.
4. Prior to investing significant physician and staff effort into review of problems, it is essential to document problem importance both within the literature and in preliminary data.
5. Documentation of selected medical problems in the literature tends to harden or soften these problems in the minds of reviewers in terms of scientific believability.
6. Documentation of selected medical problems in the data provides information about the usefulness of problem study.
7. The intense exposure which a problem specific study setting provides to reviewing physicians is a natural environment for the development of criteria. Such criteria development begins with definition in the literature and continues through review of data in a descriptive manner, rather than solely in a prescriptive (cookbook) fashion.

Behavior Modification

1. Positive behavior change can occur without threat of sanction. In addition, this can be accomplished without providers leaving the program.
2. During the course of the Project, there was no literature found concerning physician behavior modification that did not involve at least one of the following:
   a) Acute care setting
   b) Volunteer subjects
   c) Sanction

3. In the early stages of the Project, intervention was generally discussed in terms of methods of feedback to individual physicians. In the course of study, however, the concept of intervention broadened to include promoting change in the procedures or policy governing the Medicaid program.
4. The personal visit is an effective and informative method of achieving behavior change, but is costly and time consuming. Therefore, unless other methods prove ineffective, visits should be reserved for use in the case of life threatening problems or costly problems/providers.
5. Choosing a topic:
    a) Medically serious topics are often low frequency and thus behavior change is difficult to evaluate.
    b) Problems ordinarily not associated with mortality are often high frequency, and thus more amenable to post-intervention evaluation. In addition, providers may be less well informed if risks to patient health are minimal.
    c) Behavior change can be achieved when problems are not life threatening.
6. Contact with providers aids in criteria development through the gathering of feedback from providers regarding the actual circumstances of patient treatment.
7. Personal contact with providers helps to validate claims data, since providers often described the content of medical records in comparison with claims information.
8. When performing an experiment in behavior modification, or when comparing outcome with process, controlled evaluation is necessary for proper interpretation of results.

9. The notion of scientific believability seemed, throughout the Project, to influence the desire of Project participants to take action concerning a problem.
10. Problem selection should not be dictated by the need for precise, post-intervention evaluation (e.g., a large N). PSROs exist in the real world and there is a need to resolve the most serious problems first, even though these might not be the most frequently occurring problems.

Project Conclusions

Problem Review System

1. Problem review utilizes a study approach and is not intended to replace traditional, systematic screening systems.
2. Problem review can be effective within whatever resources are made available. Level of activity is dictated by available resources rather than such a factor as claims volume.
3. Problem review is a self limited system which can introduce a quality aspect into settings which now are involved primarily in utilization review.
4. The system is transferable, and to be utilized effectively it should be designed to "piggy back" on more conventional systems, such as MMIS, where data collection and broad based screening systems are already installed.
5. Problem review is flexible enough to encompass studies involving quality, utilization or outcome.

6. The use of teams of physicians, staff and consultants to define, review and resolve problems; and the participation of staff as full committee members, is an effective method of performing problem review.

Overall Conclusions

1. The change in fiscal agents after one year of Project activity was disruptive to the point that success was threatened in every major area of Project activity. The cost of such a change is not considered in the thrust by federal agencies toward periodic competitive bidding for Medicaid Claims Processing Contracts.
2. A major objective underlying all Project activity was a test of the capability of claims data to support review and intervention in an ambulatory setting. This test was successful as evidenced by the following:
    a) Information for the most part was found to be valid.
    b) Review capability was extended through the development of a flexible data support system which allows rapid retrieval of information in a question and answer, problem specific mode.
    c) Outcome indicator research was successfully supported with claims based data.
    d) Contraindicated Treatment Process review (problem oriented review) was successfully supported by claims based data.

e) Personal visits were made on the basis of claims information.

f) Evaluation of results was successful using claims based data.

SECTION III

ANALYSIS OF DESIGN AND PLANNING

INTRODUCTION

In an effort to identify the requirements essential for developing a Professional Standards Review Organization (PSRO) ambulatory care quality assurance capability, Health Care Management Systems, Inc. (HCMS) developed and administered two questionnaires to PSRO ambulatory care review system personnel participating in the demonstration program. The information gained from the questionnaires is intended for use by federal officials and PSRO leadership in highlighting design, planning and operation activities that must be accomplished in establishing the foundation for a successful ambulatory review program.

The First Year Questionnaire: Planning

The questionnaire covered four major planning areas: 1) development of the basic conceptual design of the review system, 2) project management (e.g., formation and responsibilities of the project management committee and project staffing requirements), 3) demonstration project relationships with other PSRO organizational units (the PSRO Board and standing committees), and 4) relationships with groups and organizations external to the PSRO (PSRO members and providers associated with the demonstration project as volunteer participants, consultants, and the analysis contractor). The methods used to construct, administer, and analyze the questionnaire are reported on pages 8-12 of Appendix 1, "Interim Report Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings." Data was analyzed across all PSRO projects and findings reported below reflect the opinion of aggregated demonstrated project participants.

The Second Year Questionnaire: Design and Operations

The second questionnaire focused more specifically on the actual success of each site's project design and resultant operation. A substantial number of items were aimed at management and administration issues. Other items questioned resources and funding and methods for topic selection, criteria development, data collection and processing, review and decision making, and intervention. The questionnaire was divided into two sections. Whereas the first year questionnaire was analyzed across all PSRO projects, the second year questionnaire was analyzed both by individual project (Section I) and across projects (Section II). The findings from Section I are reported below; the findings from Section II are found in Volume III of this report.

SYNOPSIS OF FIRST YEAR FINDINGS

Twenty requisites and five additional elements for a planning process were extracted from interviews with 25 ambulatory care quality review system planners participating in five demonstration projects. Overall, 20 requisites (numbered) for planning were identified and five elements (E) came very close to meeting requisite criteria.

1. Involve the PSRO Board in the review of progress reports concerning ambulatory care quality assurance system activities.

E1. Prior approval of ambulatory care quality assurance objectives by the PSRO Board is essential to avoid committing resources to activities that are later abandoned.

Two respondents said that PSRO Board approval for their demonstration projects was obtained on the basis of little information on Board members' part. Since original approval of the project, according to ten respondents, the Board has not been active in project activities other than receiving reports, primarily at Board meetings. Health Standards and Quality Bureau (HSQB) required Board approval of PSRO participation in the demonstration program. The one PSRO which did not continue to participate in the program did not obtain prior Board approval. Two respondents from this project emphasized the need for Board agreement and approval of project objectives before the initiation of activities in order to avoid wasting resources.

2. Assure that all participants in review system design and operation (PSRO staff, PSRO consultants, the funding agency and the analysis contractor) have a complete and common understanding of PSRO ambulatory care quality assurance system goals, objectives and philosophy.

Eight respondents emphasized the need for all review system planners (PSRO professionals, staff and consultants to the PSRO) to have an early understanding of the goals. They felt this might keep activities peripheral to the goals from draining resources at a later date. One respondent emphasized the need to put the goals in written form to serve as an unambiguous reminder to all throughout the review system planning phase. Another thought that a common understanding was particularly important when the personnel from more than one organization are involved in project design and planning. Respondents also emphasized the need for a common understanding between project participants, the funding agency and the analysis contractor.

3. Attract a core individual or individuals to the review system to assure the continuing momentum of review system design.

Five respondents mentioned the necessity of involving a person or persons with both a well-formulated review system core idea and the time and dedication to devote to nursing that concept through the stages of review system planning. Such a dedicated leadership is required to provide continuity and assure continuing momentum, and particularly to refine the conceptual base of the review system as project planning progresses. These critical persons are required for assembling staff resources and for interaction with the various physician groups during the review system planning phase. One of the respondents said that as planning progresses and project staff other than core individuals begin to understand the details of the review system concept, the dependence of project planning on this core declines:

4. Attract to the review system planning team a medical leader whose opinion is valued by community physicians.

Four respondents emphasized that the involvement of a medical leader whose opinion is respected by community physicians and by all project planners was important to the planning phase. The medical leader's importance lies in his ability to coordinate the sometimes diverging perspectives of the various project planners. One person who speaks with authority is required to resolve potential conflicts and demonstrate to planners the wisdom of certain resolutions.

5. Define consultant role and tasks as specifically as possible to maximize consultant usefulness to review system planning.

Six respondents felt that consultants outside the PSRO could offer significant assistance to ambulatory care review system planners. Two respondents emphasized the need for the PSRO to specifically define the consultant's tasks and expectations early in the PSRO-consultant relationship.

Three review system planners provided suggestions on how to enhance the usefulness of the analysis contractor in his role as technical consultant during the planning process. While these respondents felt that the analysis contractor was quite helpful in identifying areas of the project that required clarification, they thought that the contractor should have taken a more active role in helping the planners to resolve these issues. While these particular respondents did not specifically so mention, two others mentioned the need to clarify, at an early date, the role to be assumed by the analysis contractor, especially in the area of technical consultation.

6. Designate one review system planning team member to coordinate and rewrite planning documents, integrating sections produced by various other system designers.

7. Include on the review system planning staff one person at the full-time or nearly full-time level responsible for coordinating the technical activities for daily review system planning.

E2 It is useful to include on the review system planning team a person with skills in system design and knowledgeable in the daily operation of review system activities.

Six respondents saw the need to include a full-time or nearly full-time PSRO staff member to coordinate planning and manage eht operation of the review system; also, as one respondent mentioned, this full-time staff member is needed to attend to the time-consuming tasks and the myriad of details that arise in such an enterprise. Three respondents emphasized the importance of this person having skills in system design and management of day-to-day activities.

8. Emphasize to review system planners that planning activities are evolutionary and that they can expect testing and revision to continue beyond the initial drafting of a system design.

Seven planners mentioned the difficulty of producing planning documents that anticipated the future details of their proposed ambulatory care review systems. Five respondents mentioned that planning activities would continue beyond the planning phase and into the operational phase. They emphasized that it is impossible during the planning phase to anticipate all the contingencies that might develop in the operation of the review system. One respondent said that concept development is evolutionary, requiring modification as difficulties arise. Others said that alternative solutions to problems that are anticipated during planning can often only be investigated in an operational environment. Two respondents mentioned that while the general review system design and initial steps can be finalized during planning, the details must await operational activities. One respondent thought review system design might entail a trial-and-error process for certain problems.

9. Implement selected feasibility tests of the review system components to enhance planning prior to committing resources to larger-scale operational activities.

Nine respondents said that a feasibility test of some of the uncertainties, utilizing fewer records than the operational review system would later involve, would have been helpful. Commonly suggested review system components for feasibility tests were: 1) the abstract form, and 2) a determination of what data were likely to be found in the ambulatory record and might thus be included for quality review. Four of the nine respondents thought that a limited pilot study of the entire review system would have been helpful, although several viewed the demonstration project itself as a pilot study. The other five respondents felt that since a limited amount of time was provided for the demonstration project, a pilot study of the entire review system was not possible; that the preparation required for such a test was as extensive as was required for operating the actual demonstration review system and was, therefore, not an efficient use of project resources.

10. Make review system staff aware of the purpose and demands of planning in order that these demands do not dampen their enthusiasm.

E3. Specific deadlines for review system planning and planning documents tend to expedite those activities within busy PSROs.

Two respondents commented on a related issue, the effect that extended planning periods had on project staff. These respondents felt that staff enthusiasm for the demonstration project was jeopardized at times by an inability to investigate, in an operational setting, what everyone perceived were uncertainties concerning project design. One of these respondents as well as a third thought that project interaction with outside monitoring (HSQB and the analysis contractor) should be more intensive over a shorter period of time in order to produce an improved planning process and allow earlier testing of the review system design.

Responses varied concerning the amount of time allotted to writing planning documents. Four respondents felt that a sufficient amount of time was available for the production of the concept paper, the preliminary and the final plans. Six felt that they could have used more time. Three respondents mentioned the difficult and time-consuming tasks of integrating the concerns of everyone participating in project planning (staff, consultants, HSQB and the analysis contractor) into one coherent planning document. Three of those who felt that sufficient time was available for writing documents (planners who were not directly involved in the writing) thought that if more time had been allotted, the document writing would have consumed that time without producing plans of a higher quality or containing any more detail; these respondents felt that deadlines served the function of expediting organizational activities.

11. Include on a review system management committee representatives of those physicians whose ambulatory care will be reviewed.

E4 Inclusion of key physicians skeptical of ambulatory care quality assurance in management activities can help assure that their skepticism does not become opposition.

Each of the five PSROs participating in the demonstration project formed a management committee to oversee the planning and operation of their review systems. Five respondents mentioned the importance of including on that committee representatives of the physicians whose medical care would be reviewed so that a liaison could be established between the review system and the individual physicians. The liaison, a physician, would convey the concerns of his constituents to the PSRO, guaranteeing communication between the physician community and the ambulatory review system managers. Representatives from hospital staffs, according to the five respondents, can serve as the liaison between the PSRO and community physicians since most physicians are associated with a hospital. Two respondents mentioned that their review system management committee included a physician who had a skeptical attitude toward the review of ambulatory care and who was recruited for the committee to assure that his skepticism did not become opposition.

12. Indicate to planners that they should expect that PSRO members will express little desire to become involved in review system planning activities.

Seven review system planners said that although the PSRO general membership was notified, it expressed little desire to participate in planning activities. Several respondents were surprised that the physician community did not express more negative reactions concerning ambulatory review. Only one respondent stated that a "couple" of PSRO physicians responded by volunteering for project committees. Another respondent elicited little reaction from physicians even after his personal explanations of the project. Five respondents explained that notification usually occurred through the PSRO newsletter, although in two projects the PSRO annual meeting was also used to inform the membership. In either case only a general project description was provided.

E5 Inclusions of the PSRO membership in the design and operation of the ambulatory care quality assurance system should await its testing in order not to arouse premature opposition.

Nine respondents felt that it was premature at this time to involve the PSRO general membership in the details of the design and operation of the ambulatory care review system. These planners felt that the membership should not be involved until review was perfected and a well-developed and tested system could be presented to them. Two of these planners specifically mentioned the danger of arousing opposition to ambulatory review, opposition that would "muddy the waters" for the future and defeat ambulatory review before it had a chance to develop.

Sentiment on this point was not unanimous. One respondent felt that the benefits to be gained by increased membership interest in the PSRO and the ambulatory project were worth risking the potential opposition that might occur through such involvement. Another felt that should disharmony develop, project planning should include the "loyal opposition." Another respondent from the same project felt that as many physician groups as possible should participate in order to legitimize the project within the medical community.

13. Recruit from the review system and employ as representatives to the physician community those physicians with strong personal ties to the groups of physicians whose ambulatory care will be reviewed.

14. Identify local medical community opinion molders and enlist them as personal ambassadors from the PSRO.

Thirteen respondents emphasized that a critical factor in gaining physician participation in the demonstration project was a personal relationship between a physician representing the review system and the physicians whose ambulatory care was to be reviewed. In all the projects this personal relationship was one that had developed prior to the demonstration project. It was employed in obtaining physician volunteers for the project through letters, telephone calls and actual personal contracts. In the two projects associated with hospitals representatives of medical staffs were used to encourage physician participation in the demonstration project. Members of committees in one project were selected in large measure on the basis of their potential ability to gain the cooperation of physician volunteers. One respondent said that had physicians been asked anonymously to volunteer to have their ambulatory care reviewed they would have refused. The "peer pressure" implied by personal contact with a PSRO physician representative generated the cooperation. Two other respondents mentioned that securing the cooperation of physicians in their areas required repeated personal contact with the potential volunteers.

One project, in an effort to obtain the participation of one physician in a small group practice, actually obtained the participation of all members of that group through contact with the one group member. Five respondents saw the need for PSROs to identify the opinion molders in each locality who would serve as personal ambassadors from the PSRO to the physician and generate support for ambulatory care quality assurance activities. Permission to review the ambulatory care of physicians practicing in the outpatient department of a project hospital was secured through the hospital administration, and each individual physician did not need to be recruited.

15. Emphasize to the participating physician community that the review system will provide the physician with information useful to his practice.

Five respondents felt that one of the best methods of eliciting cooperation from volunteer physicians whose care will be reviewed is to agree to provide the physicians with feedback of review results. One respondent said that volunteers feel that review may be used to gain some knowledge about their practices without any expense on their part. Another felt that it was important to provide feedback as quickly as possible. The importance of providing positive as well as negative feedback to the physician was also emphasized. Some physician volunteers, according to one respondent, made the provision of feedback a condition for their participation.

16. Emphasize to those physicians whose ambulatory care will be reviewed by the quality assurance system that their early and willing cooperation will avoid the imposition of a system from outside the local medical community.

Fourteen respondents felt that an important factor in attracting volunteers to ambulatory review activities was the desire of the physicians themselves to become involved in a physician-led effort to establish ambulatory care quality assurance systems, thus avoiding nonphysician design of systems that may possibly have antithetical consequences for them. Two respondents specifically mentioned physicians' concern with the imposition of an unworkable system by the federal government, one not attumed to local needs. Two other respondents said that the PSRO emphasized to potential volunteers the opportunity to influence, through the demonstration project, the evolving federal policy toward ambulatory care quality assurance. One of these respondents informed volunteers of previous PSRO experiences in influencing policy.

17. Prepare system planners to expect that physicians whose care is being reviewed require few details concerning the technical operation of the review system during the planning phase.

Seven respondents mentioned that the physician volunteers requested general, not detailed, information concerning the proposed review system. This information was supplied to them in both written and verbal form. Two respondents from different projects mentioned that a personal contact session of only 10 or 15 minutes was necessary to explain project objectives and procedures, and few volunteers requested additional detail. One respondent mentioned that volunteers were more concerned with the degree to which review system activities would affect them than with the system's technical details. Another respondent said that volunteers were concerned about what the review system would cost them. Volunteers were interested in what criteria would be used in evaluating their ambulatory care. A respondent from a project associated with PSRO area hospitals confirmed that the hospitals were also interested in a general, and not a detailed, description of the proposed review system.

18. Prepare system planners to expect that physician volunteers whose ambulatory care is being reviewed will express little interest in participating in the design or the technical activities of operating the review system.

Six respondents said that the physician volunteers were not interested in participating in the design or operation of the ambulatory care review system. Five of these said that none of the volunteers expressed any desire to become involved. The sixth respondent said that a few did express a desire, while other physician volunteers offered suggestions. The majority of volunteers, however, were not interested in the technical details of the review system. One respondent felt that the physicians were comfortable in delegating this responsibility to their project representative. Another felt that they simply did not have the time for such activities and that some mechanism should be created to allow them the level of involvement that their time permits.

19. Assure that review system activities do not interfere with the physician's office routine.

Five respondents mentioned that physician volunteers concerned that review system activities might interfere with office routine. One potential volunteer decided not to participate in the demonstration project because of what he saw as potential disruption to his practice. Two respondents said that this project goal was to demonstrate that effective quality assurance systems can be developed and operated without interfering with office routine.

20. Assure the confidentiality of all physician and patient information.

Nine respondents mentioned that physician volunteers were concerned that the medical record data remain confidential. They were apprehensive about the potential dangers involved in breaching patient privacy by releasing information. Another concern was whether the physician maintained legal custody of the medical information and could release it for quality review activities without risking any patient-initiated legal consequences. One respondent said that volunteers were most concerned about the identification of the physician. Another mentioned that the PSRO anticipated the problem and had assured confidentiality of all data in the initial PSRO letter inviting physicians to participate in the project. Still another stated that this potential problem was mitigated by PSRO confidentiality policies. Two physician respondents felt that the confidentiality issue was not the real issue but was being used by some as an excuse for not participating in quality assurance activities.

SECOND YEAR FINDINGS

Method

Subjects and Questionnaire Development

The subjects for the survey were 87 persons who were involved in various aspects of the demonstration projects in the five sites. For analysis purposes, subjects were classified according to their role in the demonstration project (e.g., PSRO staff or physician, physician or nonphysician consultant, abstractor and other). Also, they were classified according to their level and type of involvement in the project.

The questionnaire was composed of two sections. The first section had 18 objective items where the respondent was requested to circle one of three answer choices which best described their position and then indicate the strength of their position along the continuum from strongly agree to strongly disagree. If respondents felt strongly about a question, they had the option of answering more than one choice.

The second section is comprised of a mixture of 22 open and closed questions. The bulk of these questions focus on describing the PSRO demonstration experience to provide technical assistance to new PSROs beginning ambulatory care review programs.

The questionnaire development began with staff review of over 150 articles, books, and papers on the topic of quality assurance. Each reference was read to extract relevant information on ambulatory care quality assurance. A listing of strengths and weaknesses in conducting ambulatory quality assurance was comprised. Special problems in the evaluation of ambulatory care were also noted within the literature.

HCMS' previous experience with ambulatory care quality assurance projects was then used to build a model for reviewing care rendered in the office setting. The model was comprised of three cycles: screening, action, and restudy. The components of the model consisted of such factors as selection of topics or providers, criteria development, review and decision making, and impact assessment.

From this model HCMS staff developed a list of issues being investigated within each site. These issue lists were site specific but gave a picture of the issues and problem areas facing each of the demonstration sites. From the issue lists a common thread of issues across all sites was determined. HCMS and HSQB staff discussions were also held to review the entire ambulatory care demonstration evaluation effort. Such discussions when combined with the issue lists and model tended to focus survey attention on the future of ambulatory care rather than objectively determining what each site did or didn't do and why.

From this process a list of 76 questions were developed. These questions were all open ended. In order to better quantify some of them and eliminate others, a sample of 32 questions was discussed face to face with a group of people working on the demonstration at one of the sites. HCMS staff reviewed the interpretations given to the questions as well as the responses. The interpretations and points of uncertainty displayed by PSRO personnel were then utilized by HCMS staff to revise the list of questions and convert others to objective (closed ended) questions. This process also assisted in determining relevance of questions as well.

A draft of the survey was prepared in late August, 1978. The HCMS staff critically reviewed the questions and a final draft was prepared on September 1, 1978. A letter soliciting cooperation support from Dr. Michael Goran of HSQB and a personal letter with directions for survey dissemination were mailed to each of the Executive Directors within each site. Each Executive Director was then requested to disseminate the survey together with a self-addressed stamped folder to each of the key people involved in the project. The list of people were derived after HCMS reviewed cost log voucher data from each site and confirmed each list of names with each Executive Director.

Complete packages of surveys and return envelopes were mailed to each Executive Director in the second week of September. A two-week turn around was requested in the letter which accompanied each of the surveys.

A series of follow-up calls from HCMS were required to obtain responses from each of the sites. After seven weeks, data analysis began and no more questionnaires were accepted.

The final response rate was 44 or 51%. The majority of those nonrespondents were physicians who served as consultants to the project in its beginning stages.

Data Analysis

For each individual project, responses in Section I of the questionnaire were tallied on a three-point scale; choices 1 and 2 (agree) and 4 and 5 (disagree) were collapsed. Since several items were mutually exclusive, if a respondent had conflicting responses indicating he did not understand the item, these responses were eliminated from the data base. From a total response rate of 1,274 the usable responses totaled 1,203. For each item, the response rate for agree, undecided, and disagree is reported.

Additional analysis examined differences between physician and nonphysician responses for those items where there was at least two responses in both the agree and disagree categories. The analysis included only those individuals who were classified as either a PSRO staff physician or physician consultant and a PSRO staff nonphysician, nonphysician consultant or subcontractor consultant. Also included were only those individuals who were rated as being involved in all or at least four phases of demonstration development.

Analysis of Section II of the questionnaire included reading the open-ended responses and synthesizing meaning into appropriate categories, depending on the nature of the question. The close-ended questions in Section II were tallied with no changes in the response categories.

DISCUSSION OF SURVEY FINDINGS (SECTION I)

Presented in Table 19, "Survey Items and Responses: New Mexico PSRO" are the 18 questions along with the total responses per question. Thirteen questionnaires were mailed to the PSRO and 6 were returned. The total responses were 145, six were not useable, leaving 139 useable responses.

New Mexico PSRO respondents agree that their project was a combination of research design and implementation of an operational review system (Item 1, 2 and 5). Respondents disagreed that use of volunteer physician participants is necessary (Item 3).

In regards to the goals of the review system, respondents agree unanimously that the focus should be on quality of care rendered to patients as well as to help contain health care costs (Item 4). Responses were split on the question of whether to review only those physician practice patterns which differ significantly from practice norms or review the entire mainstream of care (Item 9). Responses favored the question of whether to consider cost effectiveness in patient care (Item 11).

Concerning review topics, respondents favor those topics which have the greatest potential for improving the patient's health and are somewhat split on whether review topics are best determined by physician members of PSRO peer review committees (Item 12). The majority of responses support the idea of incorporating the work done by nonphysician practitioners into the review system (Item 14). Respondents were split on whether criteria should focus upon over- and underutilization of medical services (Item 17) and several respondents disagreed that the ultimate goal of an ambulatory review system is to develop standards and criteria, compare practice patterns to them and then encourage compliance where variations exist (Item 18).

The feasibility issue was raised in several questions. Respondents agree that it seems feasible to implement ambulatory care review on a nationwide basis (Item 8, 13 and 15). Although respondents favor feedback to individual physicians (rather than to groups of physicians), respondents unanimously agree that more research into the best approach to changing physician practice patterns must be undertaken (Item 10). Some respondents agreed that little or no technical assistance was needed from outside the PSRO, while others believe it is important to depend on the expertise of various outside consultants in addition to those available during the project (Item 6).

An additional analysis was conducted on those questions which showed disagreement among respondents. The items were analyzed where either two or more respondents appeared to substantially disagree (e.g., at least two or more responses in the "agree" category and at least two or more responses in the "disagree" category). Analysis was conducted to determine whether disagreement may have occurred due to difference of opinion between physicians and nonphysicians who had been heavily involved in the entire project. Respondents only substantially disagreed on two items and analysis did not clearly indicate differences between the physicians and nonphysicians.

TABLE 19

SURVEY ITEMS AND RESPONSES:

NEW MEXICO PSRO

1. a) Our demonstration is a research project wherein data collection will assist in performing subsequent ambulatory care studies.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

b) We are interested only in the development of an operational ambulatory care review system for improving quality of care rendered in our area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	1

c) Our demonstration is a combination of research design and implementation of an operational review system. We believe one must conduct adequate front end investigation prior to implementation.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	0	0

2. a) In view of the problems in measurement, conducting research on ambulatory care is unlikely to produce meaningful results.

And

b) The prime emphasis of any PSRO should be on development of an operational quality assurance project, research is not likely to result in improved patient care in the practice settings.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	3

c) A PSRO must conduct research to better understand the problem before an operational program to resolve the program can be implemented.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	0	0

3. a) In our ambulatory demonstration project, the use of volunteer subjects has been invaluable. No study of ambulatory quality assurance could be completed without voluntary participants.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	0

b) Using physicians who volunteer their office data is a practical solution to a practical problem (obtaining practice data from a physician's office). In most instances, there is no other choice.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	3

c) The use of volunteers introduces a bias into the results of any study which limit the generalizability of the findings to the practices studied and reduces the potential for using results in HSQB policy development.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	1

4. The purpose of a well constructed PSRO ambulatory care review system is:

a) To improve the care rendered to all patients in its area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	0

b) Change physician practice patterns which, in turn, would impact upon the care rendered to patients in the area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	0

c) To improve the quality of care rendered to patients in the office setting as well as to help contain health care costs.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	0	1

5. a) In conducting an ambulatory care quality assurance demonstration, reliance on the research findings of others is useful but not mandatory.

And

b) PSROs beginning ambulatory projects should place little reliance on the work of others in establishing a review program, most of our concepts were self generated to accommodate the unique characteristics of our geographic area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

c) It is necessary to conduct a complete literature search to review the findings of others prior to starting any research or demonstration project.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	0	0

6. a) Our staff resources were such that little or no technical assistance from outside the PSRO was needed.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	0	0

b) In launching an ambulatory care demonstration project heavy emphasis should be placed upon the expertise of various outside consultants for the first two years.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	2

c) The technical assistance provided through HSQB and HCMS served all of our technical assistance needs during the demonstration.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	3

7. a) The amount of seriously substandard ambulatory care cannot accurately be assessed based upon our demonstration experience thus far. It is too soon to tell.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	0

b) Substandard care in the ambulatory sector is pervasive and can be found to a greater or lesser degree in most office practices.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	0	0

c) From our experience thus far it appears that the degree of substandard ambulatory care is fairly low reflecting only a small percentage of physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

8. a) Many illnesses treated in the ambulatory sector are ill defined, self-limiting conditions for which there are no clearly accepted therapeutic regimes. As such, review of ambulatory care is not feasible.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	1

b) Quality assurance in ambulatory care is no different than any other form of care, it exists in finite amounts and those amounts can be measured just the same as inpatient care can be.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	1

c) From our experience as an ambulatory demonstration site, it seems quite feasible to implement quality assurance programs for ambulatory care on a nationwide basis.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	0	0

9. a) An ambulatory quality assurance program should look at just those physician practice patterns which differ significantly from practice norms for each area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	1

b) An ambulatory quality assurance program should look at the entire mainstream of care and seek to optimize the practices of as many doctors as possible.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	3	1

c) At this time, it is not possible to say whether ambulatory quality assurance programs can be made cost effective enough to review the entire spectrum of ambulatory care.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

10. a) Changing practice behavior is best achieved by direct practice pattern feedback to each practitioner being reviewed.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

b) Feedback comparing individual practices to a norm or standard results in physician defensiveness and resistance. The best way to change practice behavior is through education and general feedback to groups of physicians without individual comparisons.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	2

c) The best approach to changing physician practice patterns for purposes of quality assurance is not known at present, more research on this issue must be undertaken.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

11. a) Cost containment and quality assurance are totally mutually exclusive and cannot be dealt with simultaneously in ambulatory quality assurance efforts.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	2

b) The primary purpose of a PSRO quality assurance project is to improve patients care regardless of the cost implications.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	1

c) Ambulatory quality assurance while emphasizing improved patient outcomes must also consider cost effectiveness in patient care if the PSRO program is to survive.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	0	0

12. a) Ambulatory care review should focus on those topics which have the greatest potential for improving the patient's health.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

b) Review topics in ambulatory care must be chosen according to data accessibility, and frequency of occurrence in the primary setting.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	1

c) Review topics are best developed by focusing on specific practice problems determined by physician members of PSRO peer review committees.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	1	1

13. a) The approach we have used to conduct ambulatory quality assurance will be acceptable and feasible in conducting review for all physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	0	0

b) Our demonstration approach is quite unique and unlikely to be duplicated to the point where it would be acceptable to physicians in other PSRO areas.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	4

c) The approach we used in conducting ambulatory quality assurance has been largely unacceptable to physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	2

14. a) The integration of review for ambulatory services rendered by nonphysicians with existing PSRO efforts is not feasible at this time.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	1

b) As the trend toward whollistic patient care increases, the necessity of reviewing nonphysician treatment will become necessary sometime in the future.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	0

c) Incorporating the work done by nonphysician practitioners into the peer review process is quite feasible and could be undertaken immediately.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	0	0

15. a) The procedures for ambulatory quality assurance developed in our demonstration are transferrable to any other PSRO without modification or special arrangements.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	2

b) The nature of our demonstration is quite unique and it is unlikely that our approach could ever be duplicated in another PSRO.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	2

c) Transferrence of our ambulatory quality assurance procedures to other PSROs while achievable would entail much effort and very probably modification of arrangements and procedures.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	1	1

16. Problems uncovered in practices with respect to one review topic are often associated with problems in other topics.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	1	0

17. The criteria developed for each review topic should focus upon over and underutilization of medical services simultaneously.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	2	1

18. The ultimate goal of an ambulatory quality assurance review system is to develop standards and criteria, compare practice patterns to them and then encourage compliance where variations exist.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	1	4

SECTION IV

QUANTITATIVE PROGRAM DESCRIPTORS

The New Mexico PSRO demonstration project used as its review data source the large Medicaid claim data base already available in computer storage through the application of the special data base management program, REGAR. This data base for the twelve calendar months of 1976 contained approximately 1,136,800 drug claims for nearly 84,000 Medicaid recipients under the care of about 1500 physicians.

Initial screening involved extensive data processing reports of this data by prescription drug codes, ER visits, tonsillectomies, and a number of diagnoses. The tabulation by prescription drug code, for example, resulted in 140 pages of computer print-out. Sample pages of some of the REGAR reports are given in Appendix A.

After initial topic selection, a second level of frequency distribution was run for each topic providing a somewhat more focused data set, but in greater detail. These reports are described in Table 20 which shows for each topic the number of REGAR runs required, the numbers of providers and patients for which data was reported and the time span of the data used in the study.

Detailed patient profiles were run for patients selected on the basis of these frequency distributions. Selected profiles were reviewed by physician consultants to make a determination of appropriateness of treatment. Table 21 shows the numbers of providers and patients involved in this review process. The proportion of possible cases varied from topic to topic. For example, of the 121 patients identified as having received chloromycetin from 52 providers, 27 patients of 8 providers were excluded

NOTE - This is a brief summary of the demonstration project activity. For a complete description see FINAL REPORT - AMBULATORY CARE DEMONSTRATION PROJECT, NMPSRO, SEPT. 30, 1978.

TABLE 20. DISTRIBUTION OF PROVIDERS AND PATIENTS STUDIED BY TOPIC

TOPIC	REGAR RUNS	NO. OF PROV.	NO. OF PATIENTS	TIME SPAN
Drugs Contraindicated for Children				
1. Paregoric and Lomatil	1	107	345	1/76-12/76
2. Tetracycline	1	157	700	1/76-12/76
3. Flagyl	1	23	30	1/76-12/76
4. Narcotics	7	460	5,600	1/76-12/76
5. Steroids	5	130	430	1/76-12/76
Prescribing Multiple Drugs of Class				
6. Patients with 50 Rx's, 5 phys.	1		599	1/76-12/76
7. Multiple Hormones	1		258	1/76-12/76
8. Tranq., Antidepr., etc.	1		713	1/76-12/76
9. Tetracycline for URI and STP	10	203	1,700	1/76- 6/77
Drugs Requiring Monitoring				
10. Coumadin and Warfarin	2	126	396	1/76-12/76
11. Phenylbutazone	4	35	160	1/76-12/76
12. Gold Injections	1		46	1/76-12/76
13. Chloromycetin O.P.	4	52	121	1/76- 6/77
Non-Drug-Related Topics				
14. ER Study	6		114	1/76-12/76
15. Tonsillectomy	2		481	1/76- 6/77

TABLE 21. DISTRIBUTION OF PROVIDERS AND PATIENT PROFILES REVIEWED BY TOPIC

TOPIC	REGAR RUNS	NO. OF PROVIDERS	NO. OF PATIENTS
5. Steroids for Children	2	18	104
9. Tetracycline for URI	5	39	137
13. Chloromycetin	2	44	94
14. ER Study	5		25
15. Tonsillectomy	10	44	481

from the study for not meeting basic selection criteria. All of the remaining 94 patients of 44 providers were reviewed. On the other hand in the study of tetracycline for URI, 1,700 patients with 203 providers were identified but only 137 patients were reviewed for the 39 providers meeting selection criteria. In this case no more than four patients were reviewed for any provider. Criteria established by this review process were then used to identify the 870 patients with 35 providers as having exceptions (Table 22).

Table 22 gives the details of the review, intervention and restudy process for the two topics for which these activities were completed. Half of the selected providers were visited by physician reviewers and given an opportunity to discuss the exceptions and justify the care given. The other half of the providers were not contacted and comprise the control group. Two providers were not available for restudy for the tetracycline topic, exceptions were identified for only 8 of the 17 providers restudied. For the control group, 15 of the 16 providers restudied had exceptions. Restudy data for tetracycline was obtained with difficulty, but believed to be complete enough for study. Restudy data for chloromycetin was incomplete and is not shown here.

TABLE 22. PROVIDERS AND PATIENTS INVOLVED IN REVIEW, INTERVENTION AND RESTUDY FOR TWO TOPICS

	TOPIC			
	TETRACYCLINE FOR URI		CHLOROMYCETIN	
ACTIVITY	PROVIDERS	PATIENTS	PROVIDERS	PATIENTS
CASES WITH EXCEPTIONS	35	870	34	81
Feedback Group	18	530	17	40
Control Group	17	340	17	41
CASES RESTUDIED	33			
Feedback Group	17			
Control Group	16			
WITH EXCEPTIONS	23	80		
Feedback Group	8	28		
Control Group	15	52		

SECTION V

RESOURCES AND COST

INTRODUCTION AND METHOD

This section presents the personnel resources used by NMPSRO in planning, developing and operating an ambulatory review program from October 1, 1976 to June 30, 1978.

Personnel and other resources for specific functions are analyzed to present trends over time and to provide some indication of the resources required by review organizations during implementation of ambulatory review.

To develop accurate information on resource use, NMPSRO collected personnel hours spent on specific activities and forwarded the information to HCMS. Three conditions suggested special procedures for recording and collecting personnel hours:

1. Having NMPSRO personnel record their hours was likely to increase the face validity of the information collected.
2. Vouchered cost information was not considered reliable because of the variety of PSRO procedures used in billing the Health Standards and Quality Bureau (HSQB).
3. Vouchered personnel information frequently does not contain volunteer physician time and overtime which are required for an accurate estimate of resource use.

In collecting resource information HCMS and NMPSRO discussed systematic recording procedures, developed data compilation procedures and defined specific terms and categories. A record of all personnel activity was maintained in a single diary and was reviewed by HCMS staff at the end of the study.

Categorization and Compilation of Resource Data

To facilitate the compilation and presentation of data, HCMS classified the information contained in the PSRO logs into a standard format. The format was composed of three personnel categories:

1. Physicians--including physicians working either in staff capacity or as special panel consultants
2. Management/Technical--a) Management: all personnel assigned the responsibility to administer the project or to assist in managing the project, and b) Technical: personnel principally engaged in technical design of the project, analysis of the data, providing liaison with data processing, etc.
3. Data Collection/Clerical--a) Data Collection: those personnel retrieving data from medical record charts, transforming and coding data for subsequent processing, etc., and b) Clerical: secretarial personnel whose duties are typing, filing and generally supporting the project.

Each participant in the demonstration project was classified into one or more of the above three categories depending on type of work performed during the reporting periods.

Seven major functional categories were identified as spanning the entire work effort of the project. The seven functions are:

1. Planning and Administration--includes activities relating to system-wide staffing and coordination, system design and approach and the administrative support activities that facilitate review system implementation.

2. Topic Selection--work related to identifying problems or topics for review and the selection of those topics likely to produce the greatest benefit.
3. Screening Data, Definition of Topic--includes activities relating to reviewing available data in general terms in order to focus the effort on to those aspects of the topic most likely to yield results.
4. Data Processing and Analysis--activity of compiling, organizing and displaying data in preparation for professional interpretation. The analysis activity is defined as developing statistics from data collected for reviews.
5. Review and Decision-Making--professional (physician or other staff) examination and interpretation of processed information.
6. Feedback and Intervention--providing to those individuals/ facilities/groups results of analysis and/or review and decision-making.
7. Final Report--Activity associated with completing the final report for the project.

Personnel hours were allocated to functional categories by HCMS staff using the NMPSRO personnel activity diary. Subcontract personnel were allocated on the basis of subcontract billings.

PRESENTATION OF RESOURCE DATA

The summary of total personnel hours distributed by personnel category and tabulated by function is presented in Table 23. Percents of personnel resources for each of the functions is shown in total and separately by personnel category. Figure 1 is a graphic representation of the data. In this graph, the percent of total hours worked by members of each of the three personnel categories is represented horizontally and the percent of hours used for each functional category is represented vertically. Areas within the bars are proportional to the number of hours expended by any one personnel category for any one function.

Table 24 shows personnel hours for each function distributed by personnel category and tabulated by calendar quarter for the period October 1976 through June 1978. Percents of personnel resources used for each calendar quarter are given in total and separately for each personnel category.

TABLE 23: DISTRIBUTION OF TOTAL PERSONNEL HOURS BY FUNCTION AND PERSONNEL CATEGORY

	PERSONNEL CATEGORY							
FUNCTION	MD	(%)	MGMT/ TECHNICAL	(%)	DATA/ CLERICAL	(%)	TOTAL	(%)
Planning and Administration	179	(34)	2,130	(21)	1,901	(98)	4,210	(34)
Topic Selection	53	(10)	615	(6)	40	(2)	708	(6)
Screen Data, Define Topic	65	(12)	1,080	(11)			1,145	(9)
Data Processing			2,308	(23)			2,308	(18)
Review and Decision Making	101	(19)	2,295	(23)			2,396	(19)
Feedback and Intervention	124	(23)	1,345	(14)			1,469	(12)
Final Report	13	(2)	220	(2)			233	(2)
TOTAL	535	(100)	9,993	(100)	1,941	(100)	12,469	(100)
PERCENT	4%		80%		16%		100%	

FIGURE 1

DISTRIBUTION OF TOTAL PERSONNEL HOURS BY FUNCTION WITHIN PERSONNEL CATEGORY

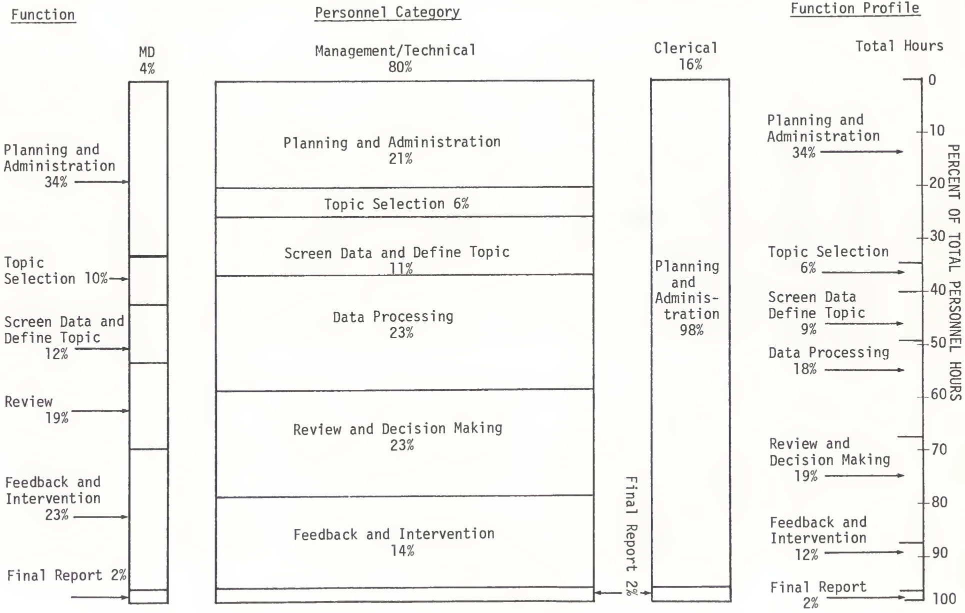
Function
Personnel Category
Function Profile
MD
4%
Management/Technical
80%
Clerical
16%
Total Hours
Planning and Administration 34%
Topic Selection 10%
Screen Data and Define Topic 12%
Review 19%
Feedback and Intervention 23%
Final Report 2%
Planning and Administration 21%
Topic Selection 6%
Screen Data and Define Topic 11%
Data Processing 23%
Review and Decision Making 23%
Feedback and Intervention 14%
Final Report 2%
Planning and Adminis-tration 98%
Planning and Administration 34%
Topic Selection 6%
Screen Data Define Topic 9%
Data Processing 18%
Review and Decision Making 19%
Feedback and Intervention 12%
Final Report 2%
0
10
20
30
40
50
60
70
80
90
100
PERCENT OF TOTAL PERSONNEL HOURS

TABLE 24: DISTRIBUTION OF PERSONNEL HOURS FOR FUNCTIONS BY CALENDAR QUARTER AND PERSONNEL CATEGORY

		PERSONNEL CATEGORY			
FUNCTION	CALENDAR QUARTER	MD (%)	MGMT/ TECHNICAL (%)	DATA/ CLERICAL (%)	TOTAL (%)
Planning and Administration	10-12/76	49 (27)	550 (26)	461 (22)	1,060 (25)
	1-3 /77	50 (28)	520 (24)	240 (13)	810 (19)
	4-6	35 (20)	400 (19)	240 (13)	675 (16)
	7-9	9 (5)	140 (7)	240 (13)	389 (9)
	10-12	12 (7)	180 (8)	240 (13)	432 (10)
	1-3 /78	6 (3)	160 (8)	240 (13)	406 (10)
	4-6	18 (10)	180 (8)	240 (13)	438 (11)
	TOTAL	179 (100)	2,130 (100)	1,901 (100)	4,210 (100)
	PERCENT	4%	51%	45%	100%
Topic Selection	10-12/76	11 (21)	90 (15)	40 (100)	141 (20)
	1-3 /77	32 (60)			32 (5)
	4-6				
	7-9		200 (32)		200 (28)
	10-12				
	1-3 /78	10 (19)	325 (53)		335 (47)
	4-6				
	TOTAL	53 (100)	615 (100)	40 (100)	708 (100)
	PERCENT	7%	87%	6%	100%
Screen Data, Define Topic	10-12/76		40 (4)		40 (4)
	1-3 /77		20 (2)		20 (2)
	4-6	53 (81)	200 (18)		253 (22)
	7-9				
	10-12				
	1-3 /78	12 (19)	380 (35)		392 (34)
	4-6		440 (41)		440 (38)
	TOTAL	65 (100)	1,080 (100)		1,145 (100)
	PERCENT	6%	94%		100%
Data Processing	10-12/76		178 (8)		178 (8)
	1-3 /77		748 (32)		748 (32)
	4-6		797 (35)		797 (35)
	7-9		312 (13)		312 (13)
	10-12		39 (2)		39 (2)
	1-3 /78		156 (7)		156 (7)
	4-6		78 (3)		78 (3)
	TOTAL		2,308 (100)		2,308 (100)
	PERCENT		100%		100%

TABLE 24 (CONT'D)

		PERSONNEL CATEGORY			
FUNCTION	CALENDAR QUARTER	MD (%)	MGMT/ TECHNICAL (%)	DATA/ CLERICAL (%)	TOTAL (%)
Review and Decision Making	10-12/76				
	1-3 /77	4 (4)	480 (21)		484 (20)
	4-6				
	7-9	37 (36)	1,100 (48)		1,137 (47)
	10-12	29 (29)	400 (17)		429 (18)
	1-3 /78	11 (11)	120 (5)		131 (6)
	4-6	20 (20)	195 (9)		215 (9)
	TOTAL	101 (100)	2,295 (100)	—	2,396 (100)
	PERCENT	4%	96%		100%
Feedback and Intervention	10-12/76				
	1-3 /77				
	4-6		280 (21)		280 (19)
	7-9		40 (3)		40 (3)
	10-12	94 (76)	740 (55)		834 (57)
	1-3 /78	30 (24)	230 (17)		260 (17)
	4-6		55 (4)		55 (4)
	TOTAL	124 (100)	1,345 (100)	—	1,469 (100)
	PERCENT	8%	92%		100%
Final Report	10-12/76				
	1-3 /77				
	4-6				
	7-9				
	10-12				
	1-3 /78				
	4-6	13 (100)	220 (100)		233 (100)
	TOTAL	13 (100)	220 (100)	—	233 (100)
	PERCENT	6%	94%		100%

APPENDIX A

SAMPLE PAGES FROM REGAR REPORTS

I. PRELIMINARY REPORT: DRUG USAGE BY PATIENT AGE GROUPS

This report identifies the drugs which had been prescribed during 1976 to the Medicaid/Medicare population; it lists the number of prescriptions by age group for each drug and the total number of prescriptions for each drug.

This was the preliminary report which was used by the physicians for defining their potential research categories. While they examined this report, they narrowed their medical research categories by generating potential study topics which better defined the categories. For example, the physicians were surprised at the number of tetracyclines prescribed and wondered whether they were prescribed for treating strep, tonsillitis, pharyngitis, and URI, thus narrowing the unnecessary drugs category to the use of tetracycline for treating strep, tonsillitis, pharyngitis, and URI.

KH/F9

16:52 JUL 09,'77

66

DRUG USAGE BY
PATIENT AGE GROUPS

1976

DRUG NAME	0 THRU 1	2 THRU 4	5 THRU 14	15 THRU 44	45 THRU 64	OVER 65	TOTAL		
NASAL CANNULA	0.	0.	0.	0.	1.	0.	1.	.00	.00
DIPRAGLIN 650MG	0.	0.	0.	0.	0.	1.	1.	.00	.00
FLORAGLIN VAG. TAB.	0.	0.	0.	2.	2.	1.	5.	.00	.00
FLAGYL	1.	8.	22.	1230.	149.	58.	1468.	.00	.00
FLAGYL INSERTS	0.	1.	2.	115.	20.	5.	143.	.00	.00
M&I FLAGYL	0.	0.	0.	2.	0.	0.	2.	.00	.00
MILTRIS VAG.	0.	0.	0.	0.	1.	0.	1.	.00	.00
ARALEN PHOS. 500MG	0.	0.	1.	5.	1.	0.	7.	.00	.00
TRICOFURON VAG.	0.	0.	2.	365.	44.	18.	429.	.00	.00
M&I TRICOFURAN VAG	0.	0.	0.	4.	0.	0.	4.	.00	.00
LYCINATE VAG.	0.	0.	0.	0.	1.	0.	1.	.00	.00
GYNBEN VAG	0.	0.	0.	3.	0.	0.	3.	.00	.00
GYNBEN VAG	0.	0.	0.	3.	1.	1.	5.	.00	.00
DOLOPHINE 5MG	0.	0.	0.	0.	3.	0.	3.	.00	.00
MORPHINE SULFATE 10MG	0.	0.	0.	0.	0.	2.	2.	.00	.00
MORPHINE SULFATE 15MG	0.	0.	0.	8.	3.	1.	12.	.00	.00
MORPHINE SULFATE 30MG	0.	0.	0.	8.	0.	0.	8.	.00	.00
CODEINE PHOS OR SO4 15MG	0.	1.	12.	12.	6.	6.	37.	.00	.00
CODEINE PHOS OR SO4 30MG	0.	1.	19.	166.	59.	85.	330.	.00	.00
CODEINE PHOS OR SO4 60MG	0.	3.	8.	25.	32.	16.	84.	.00	.00
OPIUM (DEODORIZED)	0.	0.	0.	2.	1.	0.	3.	.00	.00
MORPHINE SULFATE 30MG	0.	0.	0.	1.	[illegible]	0.	1.	.00	.00

II. FREQUENCY DISTRIBUTIONS

The following reports are samples of the type of frequency distribution reports used for determining which study topics would be pursued in-depth. These summary samples are the initial reports retrieved for the tetracycline study topic and the chloramphenicol study topic, both of which were chosen to be the study topics of choice. Some of the physicians identified on these reports were visited by the Ambulatory Care Demonstration Project's consultants. These reports list the following information:

1. Providers who contributed to the problems.

2. The number of patients for whom each provider wrote a prescription.

3. The total number of prescriptions (either Tetracycline or Chloramphenicol) each provider prescribed.

4. The total number of units prescribed by each provider.

5. The identification of patients who had received these types of oral medications (listed as patient ID).

6. The number of prescriptions and the number of units each patient received.

KH/F13

12:56 SEP 11,'77

76 DATA PROVIDERS AND
PATIENTS TETRA STUDY

Report II

PAGE 1

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PROVIDER/PATIENT ID AGE/SX	#ENCTS	#RXS	#UNITS						
**PRO RESP = [redacted]									
[redacted] 34 F	4.	2.	35.	.00	.00	.00	.00	.00	.00
**PRO RESP = [redacted]									
[redacted] 35 M	1.	1.	24.	.00	.00	.00	.00	.00	.00
**PRO RESP = [redacted]									
[redacted] 36 F	2.	1.	18.	.00	.00	.00	.00	.00	.00
→ **PRO RESP = [redacted]									
[redacted] .11 F	1.	1.	2.	.00	.00	.00	.00	.00	.00
[redacted] .13 F	3.	1.	2.	.00	.00	.00	.00	.00	.00
[redacted] .6 F	1.	1.	6.	.00	.00	.00	.00	.00	.00
[redacted] .41 F	4.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .14 M	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .17 F	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .13 M	2.	1.	18.	.00	.00	.00	.00	.00	.00
[redacted] .2 M	2.	1.	2.	.00	.00	.00	.00	.00	.00
[redacted] .12 F	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .11 M	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .22 F	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .29 F	1.	1.	10.	.00	.00	.00	.00	.00	.00
[redacted] .47 F	1.	1.	18.	.00	.00	.00	.00	.00	.00
[redacted] .13 F	1.	1.	2.	.00	.00	.00	.00	.00	.00
[redacted] .34 F	2.	2.	34.	.00	.00	.00	.00	.00	.00

III SAMPLE PATIENT PROFILE

Sample of a patient profile used by the physician reviewers in the tetracycline and chloromycetin studies.

```
***** PROFILE FOR RECIPIENT [redacted]  AGE 31  SEX F  COUNTY OF RESIDENCE 32  FAMILY SIZE 6  MONTHS ELIGIBLE 6
NUMBER ENCOUNTERS  6  INPATIENT COST             .00  NUMBER PRESCRIPTIONS  10  TOTAL COST OF CARE          141.73

ENCTR  RESP                                                               DATE OF                                          CERT
DATE   PROV   PRIMARY DIAGNOSIS          SECONDARY DIAGNOSIS       PROV  SERVICE   PROCEDURE / DRUG NAME          AMT PAID  CODE

770119 [redacted] ACNE NEC               NO DIAG AVAIL - CODE 7
                                                                 [redacted]  770119  OFFICE-LIMITED                   12.76     1
                                                                 [redacted]  770120  RETIN A 0.05%                     6.34     1
                                                                 [redacted]  770120  SUMYCIN 250MG                     5.05     1
                                                                 [redacted]  770120  DESQUAM X-5                       4.60     1

                                        .  .  .  .  .  .  .  .  .  .

770120 [redacted] GENERAL MED EXAM NEC   NO DIAG AVAIL - CODE 7
                                                                 [redacted]  770120  OFF VIS WITH PELVIC               9.02     1
                                                                 [redacted]  770128  PAP SMEAR                         7.32     1

                                        .  .  .  .  .  .  .  .  .  .

770125 [redacted] BREAST SYMPTOM NEC     NO DIAG AVAIL - CODE 7
                                                                 [redacted]  770125  OFFICE-BRIEF                      7.30     1

                                        .  .  .  .  .  .  .  .  .  .

770208 [redacted] ACUTE PHARYNGITIS      BRONCHITIS UNQUALIFIED
                                                                 [redacted]  770208  AMBENYL EXPCT.                    5.58     1
                                                                 [redacted]  770531  MYCOLOG                           9.50     1
                                                                 [redacted]  770208  RONDOMYCIN 300MG                  8.26     1
                                                                 [redacted]  770208  OFFICE-BRIEF                      7.28     1
                                                                 [redacted]  770531  MONISTAT VAG CR                   8.44     1

                                        .  .  .  .  .  .  .  .  .  .

770301 [redacted] DENTAL EXAMINATION     NO DIAG AVAIL - CODE 7
                                                                 [redacted]  770301  ORAL EXAM INITIAL                 5.20     1
                                                                 [redacted]  770301  BITEWINGS                         5.20     1
                                                                 [redacted]  770301  PROPHYLAXIS-ADULT                12.48     1
                                                                 [redacted]  770301  X-RAY INTERAORAL SINGLE           3.12     1

                                        .  .  .  .  .  .  .  .  .  .

770316 [redacted] ACUTE PHARYNGITIS      NO DIAG AVAIL - CODE 7
                                                                 [redacted]  770316  TUSSI ORGANIDIN                   4.15     1
                                                                 [redacted]  770330  TUSSI ORGANIDIN                   4.98     1
                                                                 [redacted]  770316  OFFICE-LIMITED                   10.40     1
                                                                 [redacted]  770316  POLYCILLIN 250MG                  4.75     1
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